IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

MIRROR WORLDS, LLC	*	Civil Docket No. *
	*	6:08-CV-88
VS.	*	Tyler, Texas
	*	
	*	September 28, 2010
APPLE, INC., ET AL	*	1:30 P.M.

TRANSCRIPT OF JURY TRIAL
AFTERNOON SESSION
BEFORE THE HONORABLE LEONARD DAVIS
UNITED STATES DISTRICT JUDGE

APPEARANCES:

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(Proceedings recorded by mechanical stenography, transcript produced on CAT system.)

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P R O C E E D I N G S

COURT SECURITY OFFICER: All rise.

(Jury in.)

THE COURT: Please be seated.

All right. Ladies and Gentlemen of the Jury, I apologize for keeping you waiting. It wasn't any of these attorneys' faults. I had another case that had to have some attention. It just went longer than I thought it would. So I apologize for that.

But we will get started and see what kind of progress we can make.

Mr. Carroll, how did y'all decide you wanted to split that time up?

MR. KELLEY: Your Honor, I believe that what we're doing is -- they're simply figuring up the number of lines, and it's going to be divided proportionally. And the people that are working on that will determine the exact percentage and provide it to your staff just like -- if that's okay.

THE COURT: Okay. When will you have that?

MR. KELLEY: We should have it, I would think, sometime the middle of the afternoon. Probably by the next break. We'll try.

THE COURT: All right. Let me have that.

And y'all are charged with 50 minutes, so I need to take that off and add it on to them, so let me know, all right?

MR. KELLEY: Your Honor, I'll be doing the -- the -- reading this part on this deposition for -- because of Mr. Carroll's voice, and Chuck Cantine will be serving as -- reading the part of the witness mainly because the witness is of French extraction, and somebody like me who grew up in Commerce, Texas, should not be pronouncing French words.

THE COURT: What is the name of the witness?

MR. KELLEY: The witness is Bertrand Serlet, S-E-R-L-E-T.

THE COURT: And how much time is this?

MR. KELLEY: Your Honor?

THE COURT: How much time is this deposition?

MR. KELLEY: Probably should be just a few minutes shorter than the last one.

THE COURT: Okay. And do you know how you're going to divide that time up yet either?

MR. KELLEY: We're going to do it the same way, Your Honor. We're going to do the lines. We don't have a line count at this time.

THE COURT: All right. You may proceed.

MR. KELLEY: Beginning at -- on Page 5, Line 23:

(Deposition excerpt read.)

QUESTION: Just so I'm clear, can you tell me all the educational degrees you have?

ANSWER: So I have a doctorate in computer science from Orsay. I have a master's in mathematics from Orsay, and a bachelor's in physics from Orsay.

QUESTION: So all of your degrees are from the University of -- University of Paris in Orsay?

ANSWER: Yes.

MR. KELLEY: Going to Page 11:

QUESTION: Would you please describe for me your professional work experience since receiving your doctorate in computer science?

ANSWER: Well, as I was receiving my computer science doctorate, I was working with -- at -- well, as I was receiving my computer science doctorate, I was working at INRIA, which is a French research institute.

And after that, I left and went to work at Xerox. And I believe it was from '84 to '88, and after that, at NeXT. That was -- that was then actually

acquired by Apple. It's actually very small and concise.

MR. KELLEY: Going next to Page 79, Line 17.

You there?

MR. CANTINE: Which page?

MR. KELLEY: 79. You there?

MR. CANTINE: Yes.

QUESTION: Now, we've talked about Spotlight briefly. What is Spotlight?

MR. RANDALL: Excuse me for one second.

MR. KELLEY: I'm sorry.

MR. RANDALL: Your Honor, for some reason, I thought we were going to Page 26.

MR. KELLEY: Unless I missed it... oh, actually, I did. Sorry.

MR. RANDALL: Okay.

MR. KELLEY: Hang on just a minute. I don't -- just a moment, Your Honor. I don't know that I have -- I don't know that I have the counter-designations of yours.

Do you have one with counter-designations?

Your Honor, it may be at the back bench. May I approach there just for a moment?

MR. RANDALL: Your Honor, if I may just provide him a copy of it. I think we've got an extra copy.

THE COURT: Okay.

MR. KELLEY: Does yours have it?

MR. RANDALL: I don't think it's the counter -- I think it's your testimony.

MR. KELLEY: I know, but I've got mine. I just want to make sure I've got your counter-designations on yours.

MS. ELLOUICH: It should have both.

MR. KELLEY: Okay. Go to Page 26, Line 8.

You there?

MR. CANTINE: Yes.

MR. KELLEY: Okay.

QUESTION: When did you say NeXT was required (sic) by Apple again?

ANSWER: The discussions took place in December '96, and the deal was finalized in the spring of '97.

QUESTION: What was your first title at Apple that you can remember?

ANSWER: Well, it was either Vice President or it was Senior Director, and I -- frankly, I

don't remember that.

QUESTION: Vice President of what?

ANSWER: I think it was called Platform Technologies at the time.

QUESTION: Please tell me all the titles that you can remember having at Apple.

ANSWER: So I think, but I'm not sure, that I was Senior Director for a portion of time and Vice President and Senior Vice President and -- a few years ago. Probably five years ago.

MR. KELLEY: Going to Page 31:

QUESTION: Are you currently a Senior Vice President at Apple?

ANSWER: Correct.

QUESTION: Senior Vice President of what group?

ANSWER: I'm Senior Vice President of Software Engineering.

QUESTION: And as Senior Vice President of Software Engineering, what are your job duties?

ANSWER: To make sure that the products that are responsible are shipped and are innovative and to make sure the teams have growth and develop great products.

QUESTION: What projects are you

responsible for?

ANSWER: I'm primarily responsible for Mac OS X, which is this operating system of the Mac. I'm also responsible for some layers of the OS that go into the iPhone OS, and a number of secondary products, like Mac OS X Server, Apple Remote Desktop, QuickTime, and probably a few others.

QUESTION: Is it fair to say that your primary -- strike that.

Is it fair to say that the majority of your time currently at Apple is spent on work regarding the Mac OS?

ANSWER: Correct.

QUESTION: Mac OS X operating system?

ANSWER: Correct.

MR. KELLEY: Going to Page 34:

QUESTION: Currently, as Senior Vice President, who do you report to?

ANSWER: I report to Steve Jobs.

QUESTION: Anybody else?

ANSWER: No.

QUESTION: How long have you known Steve Jobs?

ANSWER: The first time I met him was during my interview for NeXT in September '88 --

QUESTION: And do you have people reporting to you at Apple currently?

ANSWER: Yes, I do.

QUESTION: Approximately how many?

ANSWER: Indirectly, about a thousand.

QUESTION: How many Senior Vice Presidents are at Apple today?

ANSWER: I do not know the number.

QUESTION: Approximately do you know?

ANSWER: I believe less than ten.

QUESTION: When you report to Steve Jobs, how is that reporting done: Verbally, e-mail, phone?

ANSWER: For clarification, do you mean when I report information or --

QUESTION: Yes.

ANSWER: So primarily, the primary means of communication is e-mail, but there's occasional meetings. And there's regular meetings as well.

QUESTION: How extensive is your contact with Mr. Jobs?

ANSWER: It varies. For the last six months, there has been very little contact, but prior to that, I would see them typically two or three times a week.

QUESTION: When you say you would see him two to three times a week, do you mean in person?

ANSWER: Yes.

MR. KELLEY: Now, I believe we go to 79.

QUESTION: Now, we've talked about Spotlight briefly. What is Spotlight?

ANSWER: Spotlight is a way to search the user's information and to present that to the user.

QUESTION: How does the search work?

ANSWER: That's the back end, which is an engine that has an index which stores the metadata, information like that, information about files, and the engine is exercised from the user interface.

And when the user types a query, the engine is exercised and returns a list of results that is presented to the user.

QUESTION: So Spotlight is a search engine; is that accurate?

ANSWER: Search engine is a categorization that includes a number of things. You know, like Google search engine, the Yahoo! search engine, but, generally speaking, I think that is a correct statement.

QUESTION: How would you describe Spotlight?

ANSWER: Spotlight is both the engine and the user interface for it. It's a set of technologies.

QUESTION: Who came up with the name Spotlight?

ANSWER: I do not recall who came up with the name.

QUESTION: What -- was it originally called Matador?

ANSWER: Matador was a code name for Spotlight before we had a public name.

QUESTION: Spotlight is the public name, correct?

ANSWER: Yes.

QUESTION: Matador is the internal code name?

ANSWER: Yes.

QUESTION: Do you think Spotlight has been well-received by consumers?

ANSWER: That's a highly subjective kind of notion, well-received, but I know that a number of users use that facility, and it's especially useful in mail where you can retrieve a message by just typing a word.

QUESTION: I understand it's a -- I understand it's a subjective inquiry. I'm asking for

your opinion.

Do you think it has been well-received?

ANSWER: Yes.

QUESTION: Do you believe Spotlight has a competitive advantage over Windows Explorer?

ANSWER: That's a very subjective question.

QUESTION: Go ahead, please.

ANSWER: So I think Spotlight works well, works fast, has nice user interface, which I'm sure is appreciated by a number of our customers.

QUESTION: Who would you say was tasked with the primary responsibility of development of Spotlight?

MR. KELLEY: Oh, excuse me. I missed one.

On Page 86:

QUESTION: Were you involved in the development of Spotlight at all?

ANSWER: Yes. I was in charge of the team that developed Spotlight and various pieces of Spotlight.

QUESTION: Who would you say was tasked with the primary responsibility of the development of Spotlight?

ANSWER: I was.

QUESTION: Who do you think at Apple knows the most about the development of Spotlight?

ANSWER: There's a number of folks who have knowledge of different pieces. There's some five system pieces. There's some index pieces, and you have some UI pieces and some application pieces.

QUESTION: Is there anyone at Apple who knows all the pieces?

ANSWER: There's probably a number of folks who have varying degrees of knowledge of a number of those pieces, yes.

QUESTION: Would you name those people, please?

ANSWER: I would say for the UI, that's the UI Team, Scott Forstall, Greg Christie.

For the file system aspects, there's Dominic Giampaolo.

For the frameworks and the indexing, there are people like Yan Arrouye.

For the integration in various application as the people in the applications, so e-mails, Brandon Longlar and Pavel Cisler.

MR. KELLEY: Going to Page 93.

QUESTION: I believe Spot -- I believe

Spotlight was a feature of Tiger.

MR. CANTINE: I'm sorry?

MR. KELLEY: Bottom of Page 92. Excuse me.

QUESTION: When was Spotlight first incorporated into an Apple product?

ANSWER: I believe Spotlight was a feature of Tiger.

QUESTION: Was that the first vision of Mac OS X that had Spotlight?

ANSWER: It was the first version of Mac OS X that had Spotlight technology. Of coarse, Mac OS X has had the search capability for a long time. That's the predecessor technology.

QUESTION: What was that predecessor search technology called?

ANSWER: So we had V-Twin AIAT, which kind of was an engine. So V-Twin was the name of the technology -- search technology.

And for the UI, we had something called Sherlock. That was able to search all kinds of information, including searching in the file system. And that predates what we've done with Spotlight.

QUESTION: How do you spell V-Twin?

ANSWER: Up case V, dash, and up case T,

QUESTION: Does the V stand for anything in V-Twin?

ANSWER: I have no idea what it stands for.

QUESTION: And Sherlock is spelled --

ANSWER: Yes.

QUESTION: And those were the predecessor search technology --

ANSWER: Yes.

QUESTION: -- prior to Spotlight?

ANSWER: Yes.

QUESTION: Any other predecessor search technology prior to Spotlight at Apple?

ANSWER: There's been a number of things around these technologies. I believe we prepared a library code search kit. So there's been a number of related technologies, and some of them that we still use. I believe we still use these technologies for searching our help.

QUESTION: So Spotlight has been on Macintoshes since the introduction of Tiger; is that right?

ANSWER: Yes.

QUESTION: On every Macintosh since the

Tiger?

ANSWER: Yes.

QUESTION: What are the application programs and other software that uses Spotlight, a complete list as far as you know?

ANSWER: I cannot give you a complete list. I can just give you a few examples, the ones that come to mind. And also, we have a public API for Spotlight, which means that there's a number of third parties that could use that.

I don't have the list. I don't think the list exists.

QUESTION: Sure. So the application programs on other software that uses Spotlight as far as the Apple products go, would you please name them?

ANSWER: Okay. Mail, Finder, address book, font subsystem, Xcode. There may be more, but these are the ones I'm remembering.

MR. KELLEY: Going to Page 105:

QUESTION: So as far as you know, Apple has no plans not to include Spotlight in the feature operating systems?

ANSWER: Correct.

QUESTION: Let's ask (sic) about Sherlock and Spotlight. Tell me the similarities and the

differences at a high level.

ANSWER: So Spotlight lets a user search for his or her files, and Spotlight uses metadata on the file.

Sherlock -- that was the previous technology -- was based primarily in searching for the full text of the file. Sherlock was not aware of metadata, and that's a big difference.

QUESTION: Sherlock searched for the full text of the file name or the file content?

ANSWER: File content.

QUESTION: Just the file content or could it also search for the file name?

ANSWER: Yes. It could also search for the file name.

QUESTION: So full text contents or the file name?

ANSWER: Yes. But the file content is a much more challenging problem than file name, because you have a lot more text than just the name.

QUESTION: But Sherlock could do that?

ANSWER: Yes.

QUESTION: And Spotlight can also do that?

ANSWER: Yeah.

QUESTION: Spotlight can search for video files, correct?

ANSWER: Yes.

QUESTION: Can Sherlock search for video files?

ANSWER: I don't think so, because there was no -- no importer engine.

QUESTION: Who, if anyone, was first charged with the development of Spotlight?

ANSWER: There were a number of people who had different responsibilities for developing Spotlight as kind of a number -- as kind of number of technology. To get the -- to get the kind of the whole chain working, one of the persons who was probably the most in charge of it was Yan Arrouye.

QUESTION: Why did Apple first decide -- why did Apple first decide to develop Spotlight?

ANSWER: Apple likes to bring features that offer functionality for its users, and the ability to search a user's file was deemed an important thing to do. And that's why we developed Sherlock and Spotlight.

QUESTION: So would you agree that Spotlight is an improvement over Sherlock?

ANSWER: I think so. For most people -- for most people would perceive that as an improvement.

QUESTION: So when Spotlight was introduced in Tiger, do you believe it was not -- it was a new system at the time?

ANSWER: The set of functionality offered by Spotlight was indeed new, because you couldn't do that prior to Spotlight.

QUESTION: And what sort of functionality are you referring to?

ANSWER: The ability to search a user's file via metadata or full text.

QUESTION: Can you please mark this as Serlet Exhibit 2?

Have you seen this document before, Mr. Serlet?

ANSWER: No.

QUESTION: The first sentence on the third paragraph, quote: The most revolutionary feature of Tiger, according to Jobs, is a new search tool known as Spotlight.

ANSWER: I'm sorry. You're in which paragraph?

QUESTION: The third paragraph from the top.

ANSWER: Competitor -- oh, yes.

QUESTION: The most, quote,

revolutionary upgrade feature of Tiger, according to Jobs, is a new search tool known as Spotlight.

ANSWER: Yes. I've heard Steve say -- obviously, yes, for a number of technologies that it's revolutionary.

QUESTION: What do you mean by revolutionary?

ANSWER: That it changes the way people interact with their computers.

QUESTION: So Spotlight was an innovation at the time it was introduced, correct?

ANSWER: Yes. Yes.

MR. KELLEY: Going to Page 122:

QUESTION: Mr. Serlet, have you heard of something called Piles?

ANSWER: Yes.

QUESTION: What's your understanding of Piles?

ANSWER: Piles is a metaphor for the user interface and how to manipulate objects in files to kind of put them in space and put them in the virtual world.

QUESTION: When was Piles developed?

ANSWER: I do not know exactly when it was developed, but it was, I believe, in the late '80s or '90s.

QUESTION: But Piles was developed at Apple, correct?

ANSWER: Yes.

QUESTION: Can you be more specific about Piles being a metaphor for the user interface and manipulation of objects in files?

ANSWER: Sure. Piles are a way to kind of reflect what we do on our desktops. We have piles of paper that lay around and how we let paper accumulate in piles, and we manipulate and we move the file around and so forth.

QUESTION: Did Apple ever implement Piles into any of its products?

ANSWER: No. I believe no product of Apple's shipped with Piles.

QUESTION: Do you know why it was never shipped in any -- do you know why it was never in any of the shipped products?

ANSWER: Ultimately, I think we -- there were some good ideas in Piles, but we haven't yet figured out how to use them for products.

QUESTION: Can you be more specific? What aspects are you talking about now?

ANSWER: Oh, I think the metaphor is a very natural and a very intuitive metaphor that can

simplify the user experience.

QUESTION: But you're saying that that metaphor Apple has not found a way to use in its products yet?

ANSWER: That's correct.

QUESTION: Is that -- is Spotlight the same thing as Piles?

ANSWER: No.

QUESTION: Essentially, they're different concepts, Piles and Spotlights; is that correct?

ANSWER: I believe Piles and Spotlight are concepts that are different but that have some relationship.

QUESTION: Does Spotlight incorporate any of the concepts of Piles?

ANSWER: I don't think so.

QUESTION: Are you familiar with the cover -- with the Coverflow review in Spotlight?

ANSWER: Yes.

QUESTION: Is that the same thing as Piles?

ANSWER: It's not the same thing. Piles is a kind of concept.

QUESTION: Does Coverflow use any of the concept of Piles?

ANSWER: No. I wouldn't say that.

QUESTION: Why?

ANSWER: There's some system similarities, because in both cases, you are trained to represent a collection of documents. But there's different ways you can represent collections and many, many ways you can rebuild collections.

But what's important to have a good design is to have something that just fits right and that's in tune. And so in Finder, for example, we have several modes, a visualization mode. We have the Coverflow. We have icon view. We have list view. We have column view. And they're all kind of visualization modes for representing a collection.

QUESTION: Mr. Serlet, let's talk about the process of how products are launched today.

Would you describe for me generally, at a high level first, how that process works?

ANSWER: Okay. So the team works on a product, and at some point, there's some event that -- where there's -- the main features of the product are marketed. And usually after that event, that's kind of a better program of one form or another, a CD and all that, and after the product is shipped.

That's a fairly typical kind of course

for a lot of OS's that we've had.

QUESTION: When you say at some point the main features of the product are marketed, to whom are they marketed?

ANSWER: To the press and via the press to the potential customers.

QUESTION: The decision to roll out Spotlight at Apple, was that a major -- was that a major decision at Apple?

ANSWER: Major is subjective, but we definitely had a decision to market that, and the folks that were very involved in that decision, of course, the Marketing Department. They are the primary decision-makers about what features are marketed and what features are not marketed.

There's a lot of features that are underneath the hood that are not easy to market and that are not marketed, yet they are important features that provide for innovation moving forward.

QUESTION: Who was involved in the decision to launch Spotlight?

ANSWER: Pretty much everyone who works in the Marketing Department in the OS and on the engineering side, myself and a number of folks -- my folks.

QUESTION: Were business people involved in the decision to launch Spotlight?

ANSWER: Definite business people -- I'm sorry -- define business people.

QUESTION: Okay. People from -- people who looked at the commercial potential for Spotlight.

ANSWER: I think the closest for that is marketing folks. So the answer is, yes, it's marketing folks.

QUESTION: So marketing folks as well as technical people provided input into the decision whether to launch or not Spotlight --

ANSWER: Yes.

QUESTION: -- correct?

ANSWER: Yes.

QUESTION: Steve Jobs, what was his role in the decision to launch Spotlight?

ANSWER: Steve is a contributor in the marketing kind of decision and has opinions that he expresses on things.

QUESTION: Do you remember what opinions he expressed regarding Spotlight before it was launched?

ANSWER: He expressed an opinion that this was one of the features to market.

QUESTION: Well, did he have a positive

ANSWER: Yes. Yes.

QUESTION: Would it be accurate to say that the decision to launch a product is a major event in Apple?

ANSWER: Yes, it is. It's a major event for that project in particular and all the team that works on that.

QUESTION: So the decision to launch a product at Apple is not a decision that Apple takes lightly, correct?

ANSWER: Correct.

QUESTION: So in the decision to launch Spotlight, we've talked about the marketing people and the technical people.

Are there any other groups you can think of?

ANSWER: I think those are the primary groups.

QUESTION: Have you heard of the Human Interface Division at Apple?

ANSWER: There is a Human Interface Group. Usually, it's not referred to as division, but there's a group, yes.

QUESTION: Was the Human Interface Group

involved in the decision to launch Spotlight?
ANSWER: Yes.
QUESTION: What is the Human Interface Group?
ANSWER: They are the group who help define the user interface for the products.
MR. CANTINE: I'm sorry.
ANSWER: They are the group who help define the user interface for the products.
QUESTION: For the Mac OS?
ANSWER: For the Mac OS and for some of the other products, like the iPhone and so forth.
QUESTION: So the Human Interface Group was responsible for the user interface in Leopard?
MR. KELLEY: Going to Page 138:
QUESTION: What factors does Apple consider in its decision to launch a product or not?
ANSWER: There are many factors that come into play for launching your product, or there's a feature of a product.
QUESTION: Can you name those features, those factors?
ANSWER: Applicability for the user, ease of understanding feature. There's a whole set of things there.

QUESTION: Were you consulted in the decision of whether to launch Spotlight?

ANSWER: Yes, I'm sure I was consulted.

QUESTION: How were you consulted? Via e-mail, phone calls, in person?

ANSWER: I would think that that was kind of an informal conversation that took place before the launch, okay, what other features are we going to talk about. And Spotlight was one of them.

MR. KELLEY: Going to Page 145:

QUESTION: Apart from communications you've had with counsel, have you ever heard the term Scopeware Vision?

ANSWER: No.

QUESTION: What about the term Lifestreams?

ANSWER: No.

QUESTION: No, as in apart from communication with counsel, you have not heard of the term Lifestreams?

ANSWER: Correct.

QUESTION: Prior to you becoming aware of this lawsuit, you had never heard the word Lifestreams before, correct?

ANSWER: That is how I remember it,

correct.

QUESTION: Prior to your first becoming aware of this lawsuit, you had never heard of the word Scopeware either, correct?

ANSWER: Correct.

QUESTION: Have you heard of someone called named David Gelernter?

ANSWER: Yes.

QUESTION: When was the first time you heard of him?

ANSWER: It was in the late 1980s where I read a paper on something called Linda. I believe he was the author of that.

QUESTION: Who is David Gelernter?

ANSWER: He's a researcher, a scientist.

QUESTION: Have you looked at any of his work?

ANSWER: So I came across Linda, and I would have forgotten it, except that his name was in the news on an entirely different matter a few years after that.

QUESTION: What matter?

ANSWER: That was connected with the Unabomber. And that's why the name stuck in my mind, because, otherwise, I would have forgotten.

QUESTION: Other than his work on Linda, have you looked at any of his other work?

ANSWER: No.

QUESTION: What do you think of -- well, what's your understanding of Linda?

ANSWER: That was a long time ago, but my high-level recollection of it is that it was kind of a connector language where you can have tasks to do that you put in kind of a global soup of things to do, and they get executed, which I thought was -- at the time was a different way of thinking about computing.

QUESTION: Have you ever met David Gelernter?

ANSWER: No.

QUESTION: Have you ever talked to him?

ANSWER: No.

QUESTION: Or corresponded with him?

ANSWER: No.

QUESTION: What's your opinion of him?

ANSWER: I have no opinion.

QUESTION: Have you ever been involved in the marketing of anything at Apple?

ANSWER: Well, being kind of the leader of some of the Apple projects, like Mac OS technologies, I contribute to marketing the product in a peripheral

kind of way.

QUESTION: How so?

ANSWER: Well, for example, presentations at the developers' conference.

QUESTION: Have you ever presented anything related to Spotlight at a developer conference?

ANSWER: Oh, yes, absolutely. No.

QUESTION: Do you know of any other presentations of Spotlight? Do you know of anyone else who has made presentations to Spotlight besides yourself?

ANSWER: At Macworld and the developers' conference, there's been various presentations of the various versions of the OS where people like Steve Jobs, Phil Schiller, and Scott Forstall have talked about features of the OS.

I do not know whether any one of them talked about Spotlight. I'm sure Steve did. I don't know about the others. But in general, some of the features of the OS are presented by those folks.

QUESTION: Do you think that one of the Apple's strengths is an easy user interface?

ANSWER: Yes.

QUESTION: And that's appealing to

customers, correct?

ANSWER: Yes.

QUESTION: Ease of use?

ANSWER: Yes.

QUESTION: Is an easy user interface an important consideration for Apple in the development of its products?

ANSWER: Yes.

QUESTION: Do you think that Apple's products are easy to use?

ANSWER: In the -- in the relative terms, relative to the competitors, yes, but we can always do better, and we strive for it.

QUESTION: Do you think that Spotlight, Coverflow, and Time Machine had easy user interfaces?

ANSWER: I would repeat my previous statement, which is I think they're easy to use, but we can always strive to do even better.

QUESTION: And do you think that Spotlight, Coverflow, and Time Machine are important features to consumers?

ANSWER: Important is a very subjective word, but they are among the many features that we have in the OS, and we have many important features.

QUESTION: Would you consider Spotlight,

Coverflow and Time Machine to be among the most important features of Leopard?

ANSWER: That's becoming very subjective and not very factual, because we don't have a list of all the features in priority, in importance in order.

QUESTION: Right now I'm just asking you for your thoughts on this.

ANSWER: Yes, they are important features.

QUESTION: Have you ever looked at a website with the following address: www.scopeware.com?

ANSWER: I look at tens, if not hundreds of websites each day, so I do not recall looking at specific websites.

QUESTION: Okay. So you don't remember one way or another whether you looked at it or not?

ANSWER: Right. Right.

QUESTION: Are you aware of any communications or meeting between Mirror Worlds Technologies and Apple?

ANSWER: No, I'm not aware of any meeting between Mirror Worlds and Apple.

QUESTION: Mark this as the next exhibit, please.

MR. KELLEY: Marking the Deposition

QUESTION: For the record, this is a document bearing Production Nos. APMW0509264 through -67.

Have you seen this e-mail before, Mr. Serlet? If you want to take a moment to look through it, obviously.

ANSWER: The answer is yes, but my memory of it was revised by -- as I was made aware of this litigation.

QUESTION: So when was the last time you saw this e-mail?

ANSWER: Yesterday.

QUESTION: Do you remember receiving this e-mail back on July 2nd, 2001?

ANSWER: No.

QUESTION: Let's go through the people who received this e-mail, starting with a-v-i-e@apple.com. Is that Avie Tevanian?

ANSWER: Yes. That was my manager at the time.

QUESTION: And we spoke about it. Bertrand Serlet and Bereskin. That's Ken Bereskin?

ANSWER: That's the guy we connect with the Cheetah name. That's in the Marketing Department.

He was marketing Mac OS.

QUESTION: Does he have a technical background?

ANSWER: Yes, he does.

QUESTION: But he's me in the marketing group?

ANSWER: Yeah. I do not know the extent of his technical background.

QUESTION: Don Lindsay, what's his title?

ANSWER: So Don Lindsay is no longer at Apple, but he was the head -- he was the manager of the HI team at the time.

QUESTION: Bas Ording?

ANSWER: That's someone who was also working for Don, who is a UI designer.

QUESTION: And Scott Forstall?

ANSWER: Scott Forstall was working for me at the time and was in charge of the HI team.

QUESTION: What is Scott Forstall's current title at Apple?

ANSWER: He's senior VP of software for the iPhone.

QUESTION: Did Scott Forstall have any involvement in the development of Mac OS X, the various versions?

ANSWER: Yes.

QUESTION: And now he's in charge of the iPhone developments?

ANSWER: Yes. He got promoted.

QUESTION: So Mr. Forstall would be familiar with the features in the various versions of Mac OS X?

ANSWER: Yes.

QUESTION: Now the e-mail. Steve Jobs says, quote, Please check out this software ASAP, period. It may be something for our feature, and we may want to secure a license ASAP, unquote.

Do you see that?

ANSWER: Yes.

QUESTION: Do you have any understanding of what software Steve Jobs is referring to?

ANSWER: I think it's the software that's mentioned in the article, which is the software from Mirror Worlds Technologies.

QUESTION: Have you ever had any discussions with Steve Jobs regarding Mirror Worlds?

ANSWER: No.

QUESTION: Have you ever had any discussions with Mr. Jobs regarding David Gelernter?

ANSWER: No.

QUESTION: Lifestreams?
ANSWER: No.
QUESTION: Scopeware?
ANSWER: No.
QUESTION: Have you ever had any discussions with anyone at Apple, prior to this lawsuit, regarding David Gelernter, Scopeware, Mirror Worlds, Lifestreams?
ANSWER: Not that I remember.
QUESTION: So when Steve Jobs says: Please check out the software ASAP, did you check out the software at the time, in 2001, July?
ANSWER: I do not remember, but what is typical in these cases when there's -- Steve tells us to check out something is that one of us -- when he sends that to a distribution list, one of us picks this up and checks it out and then closes the root or not.
QUESTION: Okay. I'm asking you, after Steve Jobs sent this e-mail, do you know who picked up this project?
ANSWER: I believe it was picked up by Don Lindsay, but I do not remember that fact prior to this lawsuit.
QUESTION: Did anyone else, other than Don Lindsay, pick this project up?

ANSWER: I do not know.

QUESTION: But after receiving this e-mail, you did not take any actions to look into David Gelernter or Lifestreams or Scopeware --

ANSWER: Correct.

QUESTION: -- is that true?

Do you know of anyone else who did look into the software, other than Don Lindsay?

ANSWER: No.

QUESTION: Getting back to the e-mail, it says, quote, It may be something for our future, and we may want to secure a license ASAP, unquote.

Do you know if a license was ever secured?

ANSWER: I do not know that.

QUESTION: You don't know one way or another whether it was secured or not?

ANSWER: Well, when Steve says something like that, it means investigate. And the outcome of the investigation can be that it's not interesting, or we can buy the company that does it, or we license the software, or we license the IP. It could be multiple outcomes.

And I believe the outcome of that was, it's not interesting, but I don't know.

QUESTION: Has Apple ever licensed technology from a third party before?

ANSWER: Yes.

QUESTION: And who determines whether to license something?

ANSWER: It's a combination of -- when it's licensing the technology, it's a combination of the engineering group and the marketing group very often.

QUESTION: All right. Please mark this as the next exhibit.

MR. KELLEY: That would be Deposition Exhibit No. 7, which was marked for identification.

QUESTION: For the record, this is -- this is a document bearing Production No. APMW05597376 through -81.

Have you seen this document before, Mr. Serlet?

ANSWER: I have no remembrance of this document prior to the litigation.

QUESTION: Do you have any reason to believe that you did not receive this e-mail on September 6th, 2001?

ANSWER: I have no reason to believe I did not receive the e-mail.

QUESTION: Reading from the first

paragraph, it says, quote, I've arranged for Randy Prager, CTO of Mirror Worlds Technologies, to give a technology demo by a combination of conference call, plus browser, of their Scopeware product. This will be next Tuesday at 11:00 a.m. Place is TBD. You're welcome to attend if you wish, unquote.

Do you see that?

ANSWER: Yes, I see that.

QUESTION: Was the technology demo ever given?

ANSWER: I do not know that.

QUESTION: You never attended any technology meeting?

ANSWER: No.

QUESTION: Have you ever attended any meeting or conference involving Mirror Worlds Technologies prior to this lawsuit?

ANSWER: No.

QUESTION: If you go down -- if you go down more the e-mail, you see a website, quote, You can check out their product at www.decisiontolaunchscopeware.com, end quote.

ANSWER: Uh-huh.

QUESTION: Did you check out the website after receiving this e-mail?

ANSWER: I do not recall doing that.

QUESTION: Reading on, it says, quote, I also have a transcript of a recent talk of Gelernter's that explains the concept behind Lifestreams, unquote.

Do you see that?

ANSWER: Yes.

QUESTION: Did you ever look at that transcript?

ANSWER: No.

QUESTION: Who is -- do you know who Ted Goldstein is?

ANSWER: Yes.

QUESTION: Who is he?

ANSWER: He was one of my staff probably from around 2001, I'd say, until two years ago, and he was in charge of Development Tools, so he was VP of Development Tools.

QUESTION: And who was the head of Development Tools at the time?

ANSWER: He was the head.

QUESTION: He wasn't one of the nine who reported to you, was he?

ANSWER: Say that again.

QUESTION: He wasn't one of the nine people who reported to you.

ANSWER: He no longer reports to me because he left Apple, but at that time, he was reporting to me.

QUESTION: Directly to you?

ANSWER: Directly, yes.

QUESTION: Who is Tom (sic) Schaff?

ANSWER: Tom (sic) Schaff used to report to me a few years ago and left, I think, about three years ago.

MR. KELLEY: I'm sorry. That should be Tim Schaff.

QUESTION: What was his position before leaving Apple?

ANSWER: He was the head of IMG.

QUESTION: And who is Kevin Tiene?

ANSWER: Kevin Tiene. Kevin Tiene works for Craig Federighi, and he's the director of System Maps.

QUESTION: Kevin now works for Craig, the person you hired a few months ago?

ANSWER: Yes.

QUESTION: How long has Kevin been working at Apple?

ANSWER: Oh, a long time. Probably over 15 years.

QUESTION: When you say you have not heard of the term Scopeware, Mirror Worlds Technologies, Lifestreams, or David -- I'm sorry -- Scopeware, Mirror Worlds, or Lifestreams prior to the lawsuit, are you saying that you are -- that you don't -- are you saying you don't remember hearing those terms before the lawsuit?

ANSWER: Yes.

QUESTION: So you may have heard it, but you just don't remember?

ANSWER: Right, which I have no reason to doubt these e-mails, so these e-mails -- assuming they are true, but I have no reason to doubt them -- establish the fact that -- the name came across my e-mail.

MR. KELLEY: Going to Page 187.

QUESTION: And Toby Patterson, who he is?

ANSWER: Toby Patterson, he's an engineer who's been working in a variety of products. A few years ago, he was working on sort of syncing technology that syncs information across multiple Macs, and now he's working on the iPhone.

QUESTION: Did he have any involvement with the development of Coverflow or Time Machine?

ANSWER: I believe he was manager during

Leopard and some of his folks implemented the ability for mail to integrate in Time Machine so that you can navigate your mail in the past and retrieve a message.

QUESTION: You're talking in respect to Time Machine, correct?

ANSWER: Yeah.

QUESTION: What about Coverflow?

ANSWER: I don't think he was involved with Coverflow.

MR. KELLEY: Going to Page 197:

QUESTION: Can you use Spotlight in Time Machine?

ANSWER: Yes.

QUESTION: How does Spotlight work in Time Machine?

ANSWER: We -- Spotlight creates an index that lives where the Time Machine snapshots live that enables you to essentially narrow down for a given search criteria all the snapshots that contain documents that match.

MR. KELLEY: Exhibit No. 11 marked for identification. That's Deposition Exhibit No. 11.

QUESTION: For the record, this is a document bearing Production No. MW001247 through -58.

Have you seen this before, Mr. Serlet?

ANSWER: I don't recall seeing that one no.

QUESTION: Do you have any reason to believe this was not created by Apple?

ANSWER: No.

QUESTION: So you believe it was created by Apple?

ANSWER: Yeah, I believe that.

QUESTION: And you have no reason to believe that anything in here is inaccurate?

ANSWER: I assume all the facts are correct.

QUESTION: Do you know what the purpose of this document is?

ANSWER: Yeah. It seems to explain the Spotlight technology and how you can use it.

MR. KELLEY: Go to Page 209:

QUESTION: Okay. Well, I thought earlier -- let me just ask you, does Coverflow use the concept of Piles?

ANSWER: No. I think we had -- I think that was my answer earlier, and that is still my answer.

QUESTION: So the Piles metaphor is more what you would see on a tabletop, a stack of paper?

ANSWER: Yes.

QUESTION: Versus Coverflex, which is not the way you would normally see it on a tabletop going horizontally with the stacks?

ANSWER: Correct.

QUESTION: Other than the orientation, what are the other differences?

ANSWER: Well, Coverflow has been implemented in part of the product and has a certain behavior in how it behaves and how you have to click to select. And those things -- all of these -- all those behaviors is the way it is implemented.

Piles, as far as I know, is mostly a research project. It was not implemented on a product. So it's hard to compare a product that has been implemented with something that was just at the idea level, at the experimentation level.

MR. KELLEY: Your Honor, that ends the presentation of the deposition of the Bertrand Serlet ending at Page 212, Line 7.

THE COURT: All right. That took 35 minutes. All right. Very well.

All right. Who will be your next witness?

MR. DIBERNARDO: Your Honor, Mirror Worlds will call Dr. Levy.

THE COURT: Dr. Levy.

MR. DIBERNARDO: Your Ho nor, we have some boards to set up.

All right.

MR. RANDALL: Your Honor, while he's doing that, may we approach the bench?

THE COURT: Yes, you may.

(Bench conference.)

MR. RANDALL: Your Honor, Dr. Levy submitted his infringement report on May 20th, and in his infringement report, he never referenced a source code in this case. He looked -- his colleague looked at it for 90 days. He never referenced it in his expert report.

MR. CARROLL: I can show you right now --

THE COURT: Hold on. Are they putting anything up with source code?

MR. CARROLL: Hey, Kent? Kent, come here a minute.

He's talking about Dr. Levy, whether he has source code references in his report.

MR. DIBERNARDO: And we understood your concern to be that Dr. Levy went beyond the scope of his report, associating certain lines of code with particular limitations.

The slides don't do that. We're happy to show you a sample of those slides, if you'd like.

MR. RANDALL: My concern is that he doesn't even say that -- the matters he considered. In his report -- and it's right here -- that there's three pages of documents he considered. There's publications and patents and things like that, documents. He never mentions source code ever that he considered.

He didn't consider it -- I mean, he didn't -- he never referenced it in his report, and what he's going to do on all these boards is he's going to put confirmed by source code. That's not what he said in his report. He never put anything in his report that he considered -- and here's the list right here. It's not in there.

MR. DIBERNARDO: Dr. Levy did indeed review source code. It is mentioned in the report. There was specific reference -- references in the report to particular items of source code.

There's no dispute that he spent 90 days reviewing the source code. Apple pointed that out in their opening, 90 days reviewing the source code of the two versions.

MR. RANDALL: They cited to us one

instance where he says source code, and this is it, and it's not source code. But those items right there, he does not list source code.

THE COURT: Well, was there any question about source code --

MR. DIBERNARDO: Your Honor --

THE COURT: -- in his report about source code?

MR. DIBERNARDO: -- there is indeed. For example, these items -- if you'll forgive me. The metadata query referenced it, and that's a specific item of source code.

MR. RANDALL: No. I just -- it's right here. They're saying things like this: Our source code. It's not source code. It's document. And that's why it's listed as document. And we asked him -- I can show you the testimony, Your Honor, very quickly. Here's the question right down here at the bottom, and the testimony is over on the next page, the highlighted portion.

THE COURT: This is Dr. Levy? Is that what you're talking about?

MR. RANDALL: If you flip the page and read that answer over here, that one you'll see. So this is Dr. Levy saying: I -- I -- I relied on the

other expert to look at the code. I didn't have any conversations with him that confirmed my opinions.

In his report -- and he says right up here in this part, he said: I list all of the materials I considered in this report. And I've highlighted that part in the first part of his report right here.

MR. DIBERNARDO: Your Honor, while you're looking at that, may I look at Exhibit C to Dr. Levy's report?

THE COURT: Uh-huh.

MR. DIBERNARDO: Thank you.

MR. RANDALL: And, Your Honor, the -- my problem is this: When he puts confirmed by source code, it's going to open up a whole new can of worms. It's going to force me to cross-examine him on what source code are you talking about, and then he's going to unload and say: Well, it's this pile and this pile and this pile. And he simply shouldn't be allowed to do that. It wasn't in his report.

MR. DIBERNARDO: That's certainly not the case. He referenced specific items of source code in his report. These references to metadata items and data queries, those are items in the source code that are referenced.

THE COURT: You can take him -- you

establish a predicate with him where he referred to it in his report or in his deposition, but, otherwise, don't mention anything about source code.

MR. DIBERNARDO: Okay. And it's -- he said not to reference it.

MR. RANDALL: Right. You can't reference it.

MR. DIBERNARDO: I apologize. There won't be specific references to specific code. There are references on some slide in small print -- and we can show that to you -- that simply says confirmed by source code, PX numbers.

MR. RANDALL: Here's the slide. There's 31 slides; 31 slides say confirmed by source code. It's just unfair.

THE COURT: All right. Take it out.

(Bench conference concluded.)

THE COURT: Counsel, would it be helpful to take a break?

MR. DIBERNARDO: Perhaps just a minute.

THE COURT: Okay. All right. Ladies and Gentlemen of the Jury, we're going to take a 10-minute recess. Be in recess until 12:20 (sic).

COURT SECURITY OFFICER: All rise.

(Jury out.)

(Recess)

(Jury out.)

THE COURT: Please be seated.

MR. CARROLL: Your Honor, may we see you one second?

THE COURT: Yes.

MR. CARROLL: Judge, this is Dr. Levy's expert report. Section C is the items relied on for Exhibit C. Let me show you the page, Exhibit C.

Look at the last page on the tag where he said he relied on the Apple source code.

MR. RANDALL: Where's that?

MR. CARROLL: Exhibit C, the last page. Here's the deposition transcript.

MR. RANDALL: I'm sorry. I don't have --

MR. CARROLL: That's his expert report.

MR. RANDALL: What is the date of the expert report?

MR. STEIN: The confusion may be that it was the next day we sent a supplement -- or a replacement Exhibit C to --

MR. DIBERNARDO: That is the marked copy.

MR. CARROLL: Here's the deposition, Judge.

MR. RANDALL: Your Honor, I'm more

concerned about two things. One, I have Exhibit C. It didn't mention it. And in his report, he doesn't mention it anywhere in his report the reliance or analysis of source code.

And in a typical expert report, I would expect an expert to say: Here's something I relied on, and here is my expert analysis, and here is what it is, instead of just coming to trial and saying: I'm going to put up source code.

MR. CARROLL: Here's the deposition, Your Honor. The question about did he look at it and did he consider it, that's their lawyer asking those questions.

THE COURT: Okay. In your infringement report, Exhibit 4, did you consider any of Apple's source code in making your opinions?

Yes.

Forming your opinions in Exhibit 4 for infringement, did you review any of the source code?

Yes.

MR. RANDALL: He did review it, but he didn't put it anywhere in his report. That's like saying: I reviewed a whole bunch -- it's classic ambush, Your Honor.

THE COURT: Well, counsel, you asked him did he consider it, and he said that he used it in

forming his opinions. If you don't follow up in the deposition to find out more about that, you asked the question.

You knew he had the source code, did you not?

MR. DIBERNARDO: He certainly did, Your Honor. He's looked at it, I believe, in 90 days reviewing the source code.

MR. RANDALL: That was his colleague, but...

THE COURT: All right. I'll reverse the earlier opinion, and he can testify regarding that he reviewed the source code. It's plainly -- unless you're saying that this Exhibit C -- and this was not on the copy you showed me a moment ago.

MR. RANDALL: No, it was not on that. I don't know where that came from, Judge. I don't -- because I haven't looked at every single document in this case, and I can't -- I don't know where that came from.

THE COURT: Where did this come from?

MR. DIBERNARDO: It was marked at the deposition.

THE COURT: It was marked at the deposition?

MR. RANDALL: Well, let me ask a question to be clear: Was this -- when was that Exhibit C provided to us?

MR. STEIN: I just mentioned it was provided as a substitute Exhibit C, I think the day after -- or a few hours after -- because it was shown in the report.

MR. RANDALL: Your Honor, so he didn't put anywhere in his report an analysis of saying: This is the code I reviewed. Here's the code I'm relying upon for this opinion or that opinion.

Nothing like that. He didn't reference it anywhere in his report. And so to come in here and just say: I'm going to put up source code, it opens up a huge can of worms, you know, perhaps 90 days' worth of code-reading.

I don't know what he's relying on. I don't.

MR. DIBERNARDO: The cans of worms were opened. We see, for example, referenced at CFUUID, that's in the code. There are also references to the kMDItemSortIdentity Attr. That's certainly code, pieces of code between that and the deposition --

THE COURT: All right. He can testify. If you want to stop and take him on voir dire or

something, you can. But it looks to me like that he's made reference to it in his report. You asked him about it in his deposition. He said it formed the basis.

If you didn't follow up with him or request some -- something more specific in his report, there's nothing I can do about that now.

All right. Bring the jury in.

MR. CARROLL: Thank you, Your Honor.

THE COURT: Did y'all get those times straightened out for the depositions yet?

MR. DIAMANTE: Still working on it.

(Jury in.)

THE COURT: All right. Please be seated.

All right. Counsel, you may proceed.

MR. DIBERNARDO: May it please the Court.

Is the microphone on?

THE WITNESS: I think so. Can you hear me?

JOHN LEVY, Ph.D., PLAINTIFF'S WITNESS, PREVIOUSLY SWORN

DIRECT EXAMINATION

BY MR. DIBERNARDO:

Q Sir, could you please start by stating your name for the record, and your residence?

A Yes. My name is John Levy. I live at 61 Lower Robert Drive in Inverness, California.

Q Generally, what's your understanding of your role in this case?

A I was engaged by the Plaintiff, Mirror Worlds, as a technical expert to consult and testify on this case.

Q Did you hear Mr. Carroll's opening this morning on behalf of Mirror Worlds?

A Excuse me?

Q Yesterday?

A Yes, I did.

Q And as Mirror Worlds' technical expert in this case, will you address any of the five points Mr. Carroll identified as part of Mirror Worlds' case?

A Yes, I will. I will address, in part, all of the first four: Who is Dr. Gelernter, what is Dr. Gelernter's invention, and how -- why Apple was interested in Dr. Gelernter's inventions, and how Apple has and is using Dr. Gelernter's inventions.

Q Thank you.

Before we get into that, I'd like to explore your qualifications. Can you start by explaining your education after high school?

A Yes. I earned engineering degrees from Cornell University, a bachelor's in engineering physics; a master's degree in electrical engineering from

California Institute of Technology, which is also known as Cal Tech; and a Ph.D. in computer science from Stanford University.

Q Dr. Levy, what's your current profession?

A I'm a computer scientist and a management consultant.

Q Can you explain for us what a computer scientist does?

A Yes. The kind of computer scientist that I am is also known as a computer architect. I'm involved in the design and implementation of computer systems, including computer software and computer hardware.

Q Before you --

A Kind of like a building architect designs the blueprints for a building and someone else builds them.

Q Thank you.

Before we move on, can you explain what you mean by computer hardware?

A Yes. Computer hardware is the stuff you can see and touch, like the screen and the keyboard and the mouse and the touch pad, and the -- it also includes the electronic circuits that are inside the box.

And then software is the stuff that makes that all play. It's the programs that are inside and cause the computer to do something.

Q Dr. Levy, could a computer work without software?

A No, not at all. Nothing can happen inside the computer until there's software in it and running.

Q As a computer scientist, have you worked with both hardware and software?

A Yes, I have.

Q About how long have you worked in the computer industry?

A I've been in the computer industry for 38 years.

Q Could you -- could you please explain your full-time work experience in the computer industry?

A Yes. I went to work for Digital Equipment Corporation. I worked there for five years as a computer manufacturer. I worked for Tandem Computers in California for about a year and a half. And then I worked for Apple Computer for approximately four years.

Then after a period of ten years of consulting, I was employed by Quantum Corporation, who's a maker of hard disk drives, which are storage units for computers.

Q Dr. Levy, you mentioned Apple Computer. Is that the same company that's the Defendant in this case?

A Yes, it is. It's changed its name since then

to Apple without the Computer after it.

Q When did you work for Apple?

A I worked for Apple from 1979 through 1982.

Q Was that time relevant to this case?

A No, it was long before.

Q And what did you do when you were there at Apple Computer?

A I was an engineering supervisor on one of the development groups that developed the hardware of the new computer system.

Q And is that computer system you worked on at Apple Computer relevant to this case?

A No, it's not.

Q Why did you leave Apple Computer?

A I decided to start my own business as a consultant, and so I left Apple with a consulting contract from Apple.

Q Did you leave Apple on good terms?

A Definitely.

Q How do you know?

A Well, I had a consulting contract, and I continued to work approximately one day a week with people at Apple for eight or nine months after I left Quantum.

Q Dr. Levy, have you ever taught classes

relating to computers?

A Yes, I have. I taught one course at San Francisco State University on design of computers, and I have been teaching for the last six years, one class or two a year, at the University of San Francisco.

These last six years, they are continuing education classes for elders, people over 50. In fact, my students are an average age of 73.

The courses I teach there have to do with what's inside the computer and how it works and also another one called the Digital Revolution in the Home, which is about everything else, the electronic -- digital appliances at home that we use.

Q Thank you.

In your 38 years in the computer industry, have you ever been named as an inventor on a patent?

A Yes, I have. I am named as an inventor on seven U.S. patents.

Q Just generally, what technologies do those patents of yours relate to?

A They have to do with the design of computer hardware and interconnections in them.

Q Dr. Levy, have you ever served as the technical expert in a lawsuit before?

A Yes, I have. I've been engaged as an expert

in over 35 cases.

Q What types of technologies were involved with those cases?

A Those cases have involved a wide variety of technologies and computers and software, including operating systems and computer design, and also internet protocols, internet software.

Q Have you ever acted as a technical expert for a district court judge?

A Yes, I have. I've been engaged three times for two different judges as a neutral technical expert advising the Court.

Q What kind of cases do you work for judges?

A Well, two of those were patent cases, and one was a software copying dispute.

Q What types of technologies were involved in those cases?

A They had to do with -- one with internet software design, and the other one was the hardware interface of a storage unit and how it's used by software.

Q Generally, as an expert to a judge, what do you do in those cases?

A Typically, I was -- would initially give a technology tutorial to the Judge and the law clerk

involved, and then I attended some hearings at the request of the Court.

I also was asked to sit in on a meet-and-confer between the two parties one time just to keep the technical experts on both sides honest.

Q Thank you, Dr. Levy.

Can you explain why you chose to be a technical expert in this case?

A Yes. There are really two reasons. One is that my background was appropriate for my experience in operating systems, and also, I knew of Dr. Gelernter and his reputation as a visionary, and welcomed the chance to work with him in this case.

Q Dr. Levy, I would like to show you Trial Exhibit No. 1.

MR. DIBERNARDO: James, if we could, please.

There we go. Thank you.

Perhaps, if you went to the next page, please.

Q (By Mr. DiBernardo) Dr. Levy, can you identify what Exhibit 1 is for us?

A Yes. This is one of the Gelernter patents, No. '227.

MR. DIBERNARDO: If we could have Exhibit

Perhaps the second page.

Q (By Mr. DiBernardo) Dr. Levy, can you identify this Exhibit 11 for us?

A Yes. This is the '427 patent.

Q And then finally, how about Exhibit 6?

A This is the '313 patent.

Q Thank you.

Would it be acceptable for us to refer to these three patents as the Gelernter patents?

A Yes, of course.

Q And did you read the Gelernter patents before accepting the role of technical expert in this case?

A Yes, I did.

Q Did you have an initial impression of the Gelernter patents?

A Well, yes. They appeared to me to be quite significant advances in the computer field, and so I welcomed the chance to work with them.

Q As part of your role as a technical expert, did you form any opinions?

A Yes, I did.

Q And what opinions did you form?

A I formed the opinion that the Apple products that are accused in this case do infringe these patents

and also that the patents are valid.

Q Dr. Levy, turning first to your opinion of infringement, can you explain the process you used to reach that opinion of infringement?

A Yes. Generally, I studied the patents to understand what the claims set out, as well as the background of the information in the patents. And then I studied the Apple products to see how they operated in order to determine whether they met all of the claim limitations in the patents.

Q Is this the same general process that was used in the cases where you served as a technical expert to judges?

A I believe it's the same process used in all patent cases, yes.

Q How long have you been studying the Gelernter patents and Apple products in this case?

A I was engaged on this case in the fall of 2008, so I've been studying these things for almost two years.

Q Dr. Levy, do you have a document that identifies materials you analyzed in connection with this case?

A Yes, I do.

THE WITNESS: If you will show the first

A This is a summary of the items that I've considered in developing my opinions and learning about the various aspects of the products. That includes the patents, orders from the Court interpreting the terms.

I did look at the source code for the operating systems. I also have quite a bit of experience using Apple products, both as an individual and I've experimented with them specifically for this case. I've read testimony of the Apple employees, including some of the developers.

And then also, books, publications, including from Apple, articles and papers and other testimony of witnesses and, of course, the testimony and reports of Dr. Feiner, who is Apple's expert.

Q Thank you.

Dr. Levy, what Apple products did you consider?

A I considered the Apple Leopard -- I'm sorry -- Tiger Leopard and Snow Leopard operating systems and the computers that run them, and also the iPhone, iPod, iPad products, which are smaller ones, more things.

Q You mentioned that you reviewed the source code of Apple's operating systems.

Can you describe what an operating system is?

A Yes. An operating system is a large collection of programs that is an integral part of running the computer system. And it's sort of the basis on which everything else in the computer runs, and so it's a lot of software that manages what's going on in the computer, both in terms of time and space and facilities.

Q What's source code?

A What is source code?

Source code is the words that are written down by a person who's creating a program for a computer, and then these words are written in an unusual kind of a language called a programming language, which most normal people wouldn't be able to read.

And then they're translated into another kind of form, which are used by the computer when it runs.

Q Why did you go to the trouble of reviewing the source code for Apple's operating systems?

A Well, in order to find out exactly how something works in the computer, you have to know how the code works. And to know how the code works when it's running, you have to see the source code to see exactly how it's structured.

Q Do you have any experience with operating systems?

A Yes, I do. I studied the structure and operation of operating systems during my graduate years at Cal Tech and at Stanford. Also, while I was a graduate student at Stanford, I was employed by the Stanford Linear Accelerator Center, which is a physics research organization, and there I helped to write code for a real-time operating system for Stanford for SLAC.

And I was a supervisor of an operating system development at Digital Equipment Corporation for about a year and a half. And also during my time at Quantum Corporation, I was involved in disk drive -- drivers, which is a piece of software that manages the moving of data between storage units and the computer.

Q Did you have any assistance in analyzing Apple source code?

A Yes, I did.

Q Who assisted you?

A I was assisted by a man named Dr. Gareth Loy.

Q Who is Dr. Loy?

A Dr. Loy has a doctorate degree from Stanford University, and he has a great deal of experience with software and source code. And so I enlisted his help.

Q How did he assist you?

A Well, since the programs that were provided to us for inspection for the two operating systems involved

more than 5 million lines of source code. Navigating through all of this code was a serious task, and so I engaged Dr. Loy to help with learning where the various files and source code pieces were.

And then when I wanted to study a particular part of the operating system, I would ask Dr. Loy to point out where that part was, so that I could inspect it.

Q What Apple operating systems do you and Dr. Loy analyze?

A We analyzed source code for the Leopard -- I'm sorry -- the Tiger and the Leopard operating systems.

Q You previously mentioned Snow Leopard operation system. Did you look at the code for Snow Leopard?

A No, we did not.

Q Why not?

A Well, according to the testimony of the Apple employees, there were no significant differences for this -- the purposes of this technology that we're studying between Leopard and Snow Leopard.

Q Are there different versions of the Apple operating systems for different computers?

A Yes, there are. There's the main versions for the desktop and portable computer systems that

individuals would use. And there's another version called a server version, which runs on a somewhat larger computer system that's known as a server.

Q Did you review both personal computer and the server versions of the operating systems?

A No, we did not.

Q Why not?

A Because, again, the Apple employees testified that the operation of the parts of the system we were interested in were the same substantially between the desktop and the server versions.

Q Dr. Levy, your presentation references that you reviewed the testimony and reports of Dr. Feiner, Apple's expert.

Did Dr. Feiner provide any opinions in this case?

A Yes, he did.

Q What are those opinions?

A His opinion, the Apple products do not infringe, and the Patent Office was wrong to issue these patents to Dr. Gelernter and others, because there was nothing new in them.

Q Do you agree with Dr. Feiner that the Gelernter patents are invalid?

A Absolutely not.

Q Do you think the Patent Office made a mistake granting the patents?

A No, I do not.

Q Do you agree with Dr. Feiner that the patents are not infringed by Apple?

A No, I don't.

Q Dr. Levy, we will deal with invalidity later.

Let's focus first on infringement.

Do you have an opinion as to why Dr. Feiner has a different opinion as to whether Apple infringes the Gelernter patents?

A Well, I'll talk about the details of infringement in just a bit. But I think, in general, Dr. Feiner applied somewhat different meanings of the claim terms that I don't believe were proper for the Court's construction.

And also, I think it was because Dr. Feiner didn't really inspect what goes on under the hood, so to speak, in terms of the code.

MR. RANDALL: Your Honor, I think it's appropriate for them to put their case on and perhaps not put a rebuttal case on in the middle of their case-in-chief. So I'm going to object to the continued references to our opinions, and perhaps they can just put their opinion on the table, and I can cross him.

THE COURT: Response?

MR. DIBERNARDO: I think it's appropriate to point out to the jury and to the Court where Mr -- where Dr. Levy --

THE COURT: At a very high level, but you intend to call him back as a rebuttal witness, do you not?

MR. DIBERNARDO: We do indeed, Your Honor. We're happy to move on. We're just setting --

THE COURT: Let's move on to the infringement analysis then.

MR. DIBERNARDO: Certainly.

Q (By Mr. DiBernardo) Dr. Levy, let's turn to the Gelernter patents then.

Do you have an opinion as to whether the Gelernter patents address any technological problems?

A Yes. In general, they address the problem of order -- organizing and then finding your stuff, the files and the documents, on a computer.

Q When they -- when was the earliest of the Gelernter patents filed?

A 1996.

Q And was this problem -- why was this a problem when the first of the Gelernter patents were filed in 1996?

A Well, this -- this problem was recognized on larger systems as we've heard testimony about already. But, in fact, in 1996, there wasn't nearly so much being stored on a personal computer as there is now.

So in some sense, Dr. Gelernter anticipated the vast expansion of the number of files and folders and things like that on someone's personal computer.

Q Dr. Levy, do you have a document that demonstrates this problem?

A Yes, I have one that I would like to show. This is an example of the files and folders as you might find on a typical computer system that -- when you look at them that way.

So over here, we have one of the files -- I mean, folder, and each folder has to have a name. And then inside a folder like that, there might be literally dozens or even hundreds of files in other folders. And each one of those has to have a name.

And so to navigate through all of this to find what you're looking for can be very difficult.

Q Is this the same problem we heard Apple's CEO, Mr. Jobs, talk about in the video yesterday?

A Yes, it is. Zillions of files and you can't find anything, I believe he said.

Q Back when the first Gelernter patent was filed

back in 1996, was this problem widely recognized?

A No. Actually, I think on personal computers, as I said, the explosion of the numbers of files you could hold on your computer hadn't really happened yet.

So it was really anticipating the growth of storage units and the number of different types of things we might have on our computers.

Q You were here in the courtroom today, were you not?

A Yes, I was.

Q And did you hear the testimony read in of Mr. Lindsay?

A Yes, I did.

Q And do you believe that any part of Mr. Lindsay's testimony relates to this problem?

A Yes. I'm sorry. I don't remember which testimony was whose at the moment.

Q Do you recall the testimony today regarding the appreciation of this problem, folders and files and having difficulty finding things?

A Yes. Absolutely. I believe that he was naming the same problem.

Q Is it your opinion that no one, other than Dr. Gelernter, was trying to efficiently organize documents on computers back in 1996?

A Oh, no. I think that many people were working on that problem, because it's pretty well-known that it's difficult to deal with these things.

Q But you still believe that Dr. Gelernter's patents are valid, correct?

A I do.

Q Why is that?

A Well, because Dr. Gelernter expresses an embodiment of his vision of the streams and a way of thinking about one's files and -- not files but documents and objects that one's dealing with.

And that vision, I think, shapes the whole set of technologies that he's espousing, that he's trying to present. And so the patents then are particular to this vision of streams and the way of presenting them and archiving them and so on. And they're all kind of an integrated part of -- an integral part of this future vision.

Q Thank you, Dr. Levy.

Is it your opinion that the Gelernter patents describe different inventions?

A Yes, it is.

Q What inventions are described in the Gelernter patents?

A Well generally, it describes three major

things: The concept of streams, the document streams that are time-ordered that describes a three-dimensional user interface; and it describes an aspect called automatic archiving.

Q Do you have a document that you'll use that track these features, these three inventions?

A Yes, I do.

THE WITNESS: Actually, if I may, Your Honor, I'd like to step in front to --

THE COURT: Yes, you may.

Q (By Mr. DiBernardo) So, Dr. Levy, you said there were three different inventions related to the Gelernter patents.

Can you identify those for us?

THE WITNESS: Thank you.

MR. DIBERNARDO: Thank you.

A Yes, the three main topics are the time-ordered document stream shown up here, the three-dimensional user interface, and the automatic archiving.

And under each one of these, I've named some particular aspects that we will talk about in detail as we go along.

Q (By Mr. DiBernardo) Are those particular aspects under the main headings important to this case?

A Yes, they are. They -- they correspond to particular features of the Apple products, which I will show correlations with in a little while.

Q Thank you, Dr. Levy.

Let's start with the first time-ordered document stream. Do you have an understanding as to why the Gelernter patents use the term stream?

A Well, yes. I think that they use the term stream as an essential part of the idea that one's -- the diary of one's electronic life is this stream -- time-ordered stream of documents, which really can mean lots of different things in that they flow through time forming this stream that one then addresses when you're trying to find something.

Q Under the heading time-ordered document stream, the first entry is mainstream.

How do the Gelernter patents describe the mainstream?

A Well, in general, they describe the mainstream as something that contains all of the documents that are relevant or of interest to a user. And so that's the first item shown up here, each data unit, which is their term for document.

It also describes it as an electronic diary. So it's everything related to me or my stuff or somebody

that I'm looking at. And that means that things keep getting added to it and that it can keep growing, among a few other things.

It also has past, present, and future portions there. And it also has this feature called persistence, which means that it can be updated as new things come along.

MR. RANDALL: Your Honor, I'm going to make an objection about this. That definition of mainstream is inconsistent with Your Honor's claim construction.

I don't mind it at high-level discussion about what the patent --

THE COURT: You can cover that on cross-examination.

MR. RANDALL: Okay.

Q (By Mr. DiBernardo) Thank you, Dr. Levy.

If we can step back, you mentioned that the stream has a past, present, and future portion.

Can you give us an example of those past, present, and future portions?

A Yes. An example would be, something in the past might be a document I received last week or much longer ago. Something that would be in the present might be a letter I'm writing right now. And something

in the future section could be something like a to-do item I put in my calendar for the future.

Q And what's meant in the patents by persistent mainstream?

A Well, as I described, a persistent mainstream we'll get into in detail in a bit, means that things keep getting added to it dynamically as things come along.

Q Do the Gelernter patents use the term substream?

A Yes, they do.

Q How do they use that term? What does it refer to?

A Well, substream is how Dr. Gelernter explained the example; for example, looking for all the documents related to his wife who's name is Jane and he would type in that name.

And so it really means a search or a filter where only the parts that are related to that word or that person come out as the search results. That's what's meant by a filter on the stream.

And it also has the characteristic of being persistent, which we'll talk about later, which means that things are updated as they come along.

Q Can you give us an example of what you mean by

persistent substream?

A Yeah. So if Dr. Gelernter was looking at the substream that was everything related to Jane, then if a new e-mail came in while he was looking at that, he would see the new e-mail arrive and be shown to him automatically as it came in dynamically.

Q Thank you, Dr. Levy.

Let's turn to the second aspect of the Gelernter patents, this 3-D user interface.

Can you first explain what a user interface is?

A A user interface describes how a person interacts with a computer, and so that means both what's on the screen that I'm looking at as a user and also how I interact with it using a keyboard and a mouse or a touch pad and things like that.

Q What is the user interface described in the Gelernter patents?

A Well, generally speaking, the user interface is that three-dimensional stack of documents that represents the stream or substream.

Q Do you have a document that demonstrates that?

A Yes, I do. This is Figure 1 from the patent, and this figure shows the stack of documents here. And there's a pointer back here, which is sometimes called a

cursor, which then can be passed over that stream. And when the cursor touches one of the documents, this glance view pops up so you can see what it is that you're looking for.

Q Dr. Levy, you put a line across that stack of items.

Do those items have a name in the context of the Gelernter patents?

A Yes. These are called document representations in this patent.

Q Dr. Gelernter, your summary board uses the term receding foreshortened stack.

Why do you use that term?

A What's that?

Q Why do you use that term, receding foreshortened stack?

A Well, that phrase occurs in the patent claims. It's a very important aspect of the presentation, the view of a stream or substream in the 3-D user interface.

And that means that there is an appearance of things moving into the third dimension, or receding; and that there's some kind of use of perspective to give you that view of more prominent things or more recent things being in the front, so they're more prominent, and the less recent things being farther to the back and less

prominent.

Q Is this idea of a receding foreshortened stack important to your opinion that Apple infringes the Gelernter patents?

A Yes, it is.

Q And why is that?

A Well, I think I -- I think I explained that with the more prominent things being in front and the less prominent things being in back. And so that sense of the receding and foreshortening is a key aspect of how that's done.

Q Thank you.

Is this display necessary for the creation of the stream you were talking about earlier?

A No, it isn't. It may be a little bit hard to grasp, but the stream itself is not the display. The stream is something that's inside the computer that's in something called a data structure. And I'll be talking about that more in a little bit.

So as in -- if you remember Dr. Gelernter's example where he showed all those things coming together to form the stream, and then after a while there was a filter and you saw just the documents you were interested in, the stream that was going along the bottom there is actually something that's entirely in

the computer. It's not on the screen. And so it's not necessary to have a display in order to have the stream.

Q You were here for Apple's opening statement in court, were you not?

A Yes, I was.

Q And did you hear Apple's attorneys explain and point to Figure 1 of the patent and explain that as a stream?

A Yes, I do.

Q Do you agree with that characterization?

A No. As I just explained, the stream itself is not the display. And even though occasionally in the patent, the words will use the term stream or substream to describe what's being shown, in fact, the claims definition are entirely related to what's inside the computer.

Q Thank you. Let's turn back to the patent.

Dr. Levy, can you describe how a person interacts with this user interface of the Gelernter patents?

A Yes, I can.

THE WITNESS: Could you show the next page?

A This is an animation showing how as you slide the pointer over the stack, the glance view pops up over

here to show what's there. And that's a key item described in the patent about how to browse through this stack of documents.

Q And is this feature the way a person interacts with the interfaces reflected on your poster board?

A I'm sorry?

Q I'm sorry. I'll speak up.

Is this the way a person interacts with the interface of the Gelernter patents reflected on your poster board?

A Yes.

THE WITNESS: Could you provide me a copy of the poster board?

MR. DIBERNARDO: Sure.

Your Honor, may I hand the witness a copy of his poster boards since he can't see it?

THE COURT: Yes, you may.

THE WITNESS: Thank you. I can't see them from here.

A So on the board, you'll see the words document representations, which is talking about the squares here in the stack.

The glance view, which refers to this thing in the middle; and the receding foreshortened stack, which is the stack on this figure; and sliding the pointer

refers to that action you just saw happen.

Q (By Mr. DiBernardo) Thank you, Dr. Levy.

Let's move on to the third invention you identified in the Gelernter's patents, the automatic archiving.

Can you first explain what you mean by automatic archiving?

A Yes. Archiving --

THE WITNESS: I believe the next page will show a figure.

A So archiving is copying or moving a document from the computer to an additional storage -- backup storage somewhere, usually outside the main computer.

And so, for example, if I had a bunch of papers in my office and I wanted to make sure I didn't lose an important one, I might have my assistant make a copy of that and put it away in the file cabinet over here on the right.

And so archiving is that kind of action. Automatic archiving means doing that in a certain way without my asking it to.

Q (By Mr. DiBernardo) And is automatic archiving an important aspect or --

A Yes. It's an important aspect of the Gelernter inventions shown under automatic archiving.

The archiving refers to automatic backup.

Q Does automatic archiving provide benefits to users of computers?

A Yes, it does. For one thing, it allows me not to worry about which things I might lose, because I can always go find them in the backup or archive. And also, if I don't have to say which things to save and it automatically selects things for me, that also saves that amount of time and concern about remembering to do it.

Q Thank you, Dr. Levy.

Let's turn to the Apple products now, and perhaps we should take a minute. We've heard a lot of different terms.

Would you refresh our recollection as to what the Apple products are?

A Yes. You mean the features that we're going to focus on?

Q Please.

A We're going to focus on the three features that you've heard about: Spotlight and the Coverflow interface and the Time Machine backup facility.

Q We heard earlier today about Scopeware. Is Scopeware an Apple product?

A I haven't studied the question of Scopeware,

so we're not concerned with Scopeware as such.

Q Okay. So it's not an Apple product?

A No, it's not.

Q Just trying to keep things straight.

A Yes, that's important.

Q So, Dr. Levy, based on your analysis of the Apple products, are certain features of the Apple products more relevant than others to your opinion of infringement?

A Yes, it is.

THE WITNESS: And shall I use the board to summarize that or --

MR. DIBERNARDO: Your Honor, may the witness go to the board?

THE COURT: Yes, he may.

A So this summarizes the features of the Apple products: Spotlight, Coverflow, and Time Machine. And underneath each of those, I've shown the particular aspects of the features in the Apple products that correspond to the claimed inventions in the Gelernter patents.

And so I'll be going through these one by one carefully as we talk about the claims.

Q (By Mr. DiBernardo) Dr. Levy, can you go through them first at a high level one by one?

Why is Spotlight relevant to your opinion that Apple infringes?

A That's because Spotlight contains something called the Spotlight Store, which I will show is an implementation of the mainstream and these aspects of it. The Spotlight search results, when they're obtained, correspond to the substream of the patents.

And then, of course, Coverflow implements a 3-D user interface. And I'll show it's related to the invention, and the Time Machine to the automatic archiving.

Q Thank you.

Dr. Levy, let's start with the first feature, Spotlight. Can you generally explain what Spotlight is?

A Yes. Spotlight is a feature and a facility that actually consists of two major portions. There's the port -- part that's inside the computer that organizes documents, which I'm going to refer to as the Spotlight Store.

And, of course, there's a lot of software programs associated with that that I've heard referred to in the testimony as the Spotlight engine. I'm actually not going to talk about that so much, just the store.

But you'll know when we talk about the

Spotlight Store. I'm talking about the software that manages it and the contents as well. So the Spotlight Store is a key part.

And then the Spotlight search results, we're going to talk about how the Spotlight allows someone to search for things or find things and get results back that eventually gets displayed to that.

Q Dr. Levy, do you have an opinion as to whether Spotlight is important to the Apple computers?

A Oh, yes. I believe it's not only an integral part, but a key feature of the Apple operating systems.

Q Do you have something to show us that demonstrates how a search is performed using Spotlight?

A Yes. I'd like to show sort of a video clip that demonstrates some of this.

(Video playing.)

STEVE JOBS: What I'd like to do now is just show you a little -- this is Spotlight.

All right. I'm going to get the Spotlight here. Just click up here. Isn't this great?

I've got a 20-inch cinema display every single pixel up there on the screen. That's fantastic.

So I'm going to say, Spotlight, I'm going to look for soccer, and, boom, it finds everything in my system. I've got about a quarter million files on this

system here. I've got a quarter million files, and it just went through and found them all.

And I'm just going to say show all, show the window, and here's all the things it found about soccer. And I can -- if they're sorted over here by kind. I can sort them by date, if I want to, so I'll see all the things that I -- I've opened today or last week or last month. Or I can sort it by people, but I'm going to keep by kind here.

And I'm going to go look at, as an example, an equipment price list up here in documents, the first entry. And it opened an Excel document and found out that the word soccer was inside an Excel document, and, of course, it found it. Very easy.

(End of video clip.)

Q (By Mr. DiBernardo) Dr. Levy, is the operation of Spotlight that we just saw relevant to your opinion that Apple infringes the Gelernter patents?

A Well, yes. We just saw a demonstration of how Spotlight searches for things in any case. We'll talk more in detail about how that works.

Q And do you have a document that demonstrates how Spotlight actually works?

A Yes, I do.

THE WITNESS: If you'll go to the next

A So here, I'm going to describe for you how the Spotlight Store works. Now, this is the core of how Spotlight keeps track of documents, organizes them, and then answers questions about how to find things. So I'm using here a simplified diagram that I've taken from one of Apple's own manuals.

They use this magnifying glass symbol here to represent Spotlight, and inside the Spotlight Store there are two portions: The Metadata Store and the content index.

Q Dr. Levy, what's the Metadata Store?

A Well, first, let's say what metadata is.

I think you heard the term, but metadata is information about a document rather than the document itself. And so it might be something about like who wrote the document or what time it was created.

Q Is metadata important to your opinion that Apple infringes the Gelernter patents?

A Yes, it is. It's a key part of the aspect of keeping track of time and the sequence -- time sequence of documents.

Q And can you describe the content index in the Spotlight Store?

A Yes. The content index is another kind of

storage system that keeps track of all the words inside the document. So content just means what was written in the document. So it's kind of like a index in the back of a book where you can look up any of the topics, or in this case, individual words and find out what page that word was on.

And the content index it gives you a list of all the documents that have that word for each word that's in it.

Q Thank you for that.

Can you describe now how the Spotlight Store is actually used?

A Yes. I'm going to describe its operation in five steps.

THE WITNESS: So if you'll show the next page, please.

A So in general, a document is either created or received by a computer system, and I'm showing this as documents go in. Now, they go into the system; and when they do, the Spotlight Store is notified that something new has come in. So that's Step No. 1.

And Step No. 2, information about the document, which is metadata, is stored in the Spotlight -- in the Metadata Store, things like date and time that it was created or the author.

And then third, the words that are in the document are stored in the content index.

THE WITNESS: So if you'll go to the next page, please.

A So then Steps 4 and 5 have to do with how this is used once you've loaded up information into the Spotlight Store.

The next one is with this question mark on the right for No. 4 is a request for a search coming in.

Now, this is part of something that's called an API, application program interface, which we'll describe a little bit more in a moment. But all you need to remember now is that it's a way for two pieces of software to talk to each other.

So first, the request for a search comes into the Spotlight Store, and then the contents of the metadata are found that match that, and then search results are returned in Step No. 5.

And I'm showing that as a bunch of documents, and that's where we're going to see search results and substreams happen.

Q (By Mr. DiBernardo) Dr. Levy, can you explain for us where the search comes from in Step 4 in your diagram?

A Yes. This search might come from any one of a

number of application programs, in fact, the thing called the Finder, which is a very special application program in the Macintosh operating systems.

So, for example, it might come from the calendar program to find things related to due dates or on a to-do item, or it might come from an address book application to find a person whose address card is in that or other information, or it might come from the Finder, in which case it's looking for any kind of document based on either its contents or its metadata.

Q Thank you.

Do you have a document that demonstrates an example of a document -- of metadata and content going on into the Spotlight Store?

A Yes. On the next page, I have an example of an e-mail, and by now, actually, you've all seen a lot of e-mails shown to you.

This is shown, of course, as if it were on paper, but, in fact, an e-mail is an electronic document that comes in, but it still has all this information in it.

Q Does that e-mail have metadata?

A Yes, it does.

THE WITNESS: If you'll show the next page, please.

A So in this e-mail, the metadata is many things, but includes the name of the sender and the date it was sent. And as you'll see, once that comes in, the metadata is extracted and stored in the Metadata Store.

Q (By Mr. DiBernardo) And does that e-mail have content?

A Yes, it does.

On the next page, you'll see the content, and some of it is highlighted. It's just the words that are written in the document, in the body of the e-mail in this case.

And so these words, each one of them, get entered into the context -- content index, and so they can be -- the document can be found based on the words that were in it. And this shows just a few of the words that were in this document.

Q Thank you, Dr. Levy.

Let's turn back to your summary board. Your summary board shows the Spotlight Store corresponding to the mainstream.

What makes the Spotlight Store correspond to the mainstream, in your opinion?

A In my opinion, the Spotlight Store corresponds to the mainstream for several reasons. Number one, it contains information about all the documents of interest

to a user and of all different types from all different sources.

Number two, the documents keep being added to this. And also, because the -- when you request a search and get results back, the results can be given in time-order. That forms a substream. And so that tells me that in this Spotlight Store where everything is stored, that's where the mainstream is.

Q Thank you.

Dr. Levy, do you have a document that demonstrates the basis for your description of the Spotlight Store?

A Yes.

THE WITNESS: If you'll go to the next page, please.

A These are some notes, then some summary from some of Apple's manuals and some of Apple's software developers. It repeats what you've already heard. The Spotlight Store holds metadata of the files. Some of the attributes of the metadata include creation date, modification date, and due date. That's some of the time-oriented information.

These APIs, that's the way of talking to the Spotlight Store, can return documents organized by time. And the MDQuery API, which is the one we were talking

about returns search results in time order. And then content index in Leopard and Snow Leopard sorts the metadata in time order. And that is also important, as I'll explain in a bit, to confirm that this mainstream is in the Spotlight index.

Q Thank you.

Your earlier example used an e-mail. Are e-mails the only types of documents that are stored in the Spotlight Store?

A No. Many types of documents are stored in the Spotlight Store, including anything from letters I'm writing to calendar items to photographs and movies and music and many other things.

Q And is this aspect of the Spotlight Store important to your opinion that Apple infringes?

A Yes. It is certainly part of it because of the various types of documents and coming in various formats.

Q Do you have something to show us that demonstrates these different types of documents in the Spotlight Store?

A Yes. I'd like to show another short video clip, please.

(Video playing.)

STEVE JOBS: So I take a handful of

features that I'd like to show you in Mac OS 10 Tiger, and the first one and the most important one is Spotlight.

Spotlight is our search technology that's built right into the core of Mac OS 10 Tiger, and it allows you to find anything on your system: Documents, images, you know, appointments and calendars, things in PDF files, bookmarks, anything, e-mails, contacts. You name it, and you can find it almost instantly.

(End of video clip.)

Q (By Mr. DiBernardo) Dr. Levy, we heard Apple's CEO, Steve Jobs, describe Spotlight as built right into the core.

Can you explain what that means?

A Yes. Spotlight and the Spotlight Store are integrated into the operating system as a major facility that's offered to all of the application programs, including the Finder to use.

And not only that, it can be used by programs that are written by people other than Apple so that their applications can use the Spotlight Store to find things.

And so it's really an integral part of the operating system.

Q Dr. Levy, do you have any other support for

your opinion that different kinds of documents are stored in the Spotlight Store?

A Yes. On the next page, here are a few quotes about Spotlight allowing you to find anything and naming some of the things that it can find.

It says it indexes, importing the metadata in all files in your computer. Spotlight searches everything.

And some of the examples down below includes images -- that's like photographs or images -- music, movies, various documents and messages and contacts and many other things.

And, in fact, a person writing the application program for use with Apple computers can also create what's called an importer so that new additional types of things can also be put into the Spotlight Store.

Q Dr. Levy, where did these quotes come from?

A These are from Apple's documents or their people who were talking about them.

Q Dr. Levy, does this feature, Spotlight Store, that includes documents of different types correspond to any feature in the Gelernter patents?

A Yes. It corresponds to the mainstream, the Spotlight Store does, because it contains everything of interest to a user.

Q Dr. Levy, do the contents of the Spotlight Store ever change over time?

A Yes, they do. They are dynamically updated as new documents or different kinds of files come into the computer system or are created on the computer system.

Q Do you have a document that demonstrates how this is done?

A Yes.

THE WITNESS: If you would go to the next page.

A This is a quote from one of the Apple documents: As each file is created, copied, updated, or deleted, Spotlight ensures that the entries for that file are updated.

So it's not just a static picture of what is in a document or what it's about, but every time it's changed, the Spotlight Store updates the information.

Q (By Mr. DiBernardo) And does this feature of the Spotlight Store correspond to any feature in the Gelernter patents?

A Yes. This dynamically updating in the Spotlight Store corresponds to the persistent mainstream characteristic that we'll show in the patents.

Q And that's reflected on your poster board?

A Yes, it is. If you'll look at the last line

just above the 3-D user interface, you'll see how they correspond.

Q Dr. Levy, once a Spotlight search is performed, are the search results ever updated?

A Yes, they are.

Q Can you give us an example of how they might be updated?

A Yes. As the example I gave before Dr. Gelernter did the search for everything related to Jane, and he's looking at the search results on the screen.

And then if a new thing comes in that has Jane in it or is related to her name, that would also show up dynamically right after it came in on his search results.

Q Can you show us something that demonstrates the basis for your opinion?

A Yes. I'd like to show another short video clip, please.

(Video playing.)

STEVE JOBS: But it goes much deeper than that, because, because the OS can let Spotlight know when something changes, it instantly updates when things change. You don't have to run another search. You don't have to wait 10 minutes.

You can be looking at a result and it will change right in front of you, if the underlying files change, because the OS can notify Spotlight that that's happened instantly.

(End of video clip.)

A So that instant notification is what enables the Spotlight search results to be updated dynamically.

Q (By Mr. DiBernardo) In the video, Mr. Jobs and other people have referenced OS. Just so we're all on the same page, can you tell us what OS stands for?

A OS just means operating system, so it's referring to these operating systems that we've been describing.

Q Thank you.

Do you have any other documents that demonstrate the basis for your opinion that the search results in Spotlight are dynamically updated?

A Yes. On the next page, I have some quotes from -- the first one from Steve Jobs in -- that you just heard, that the results will change right in front of you.

And also a couple of other quotes: When the file had -- of the computer is changed, Spotlight knows and revises your search results on the fly.

And also what Spotlight calls this feature of

dynamic updates live queries just means that the search results are live and keep being updated as you go, so updating the results.

Q Dr. Levy, do the Tiger, Leopard, and Snow Leopard operating systems include the Spotlight Store that you've just described?

A Yes.

Q Are there any differences between the Spotlight Store in the Tiger, Leopard, and Snow Leopard operating system?

A Yes, there is one difference.

In the Leopard and Snow Leopard operating systems, not only is the metadata put into the metadata store, it's also -- the words of the metadata are also entered into the content index.

Q Do you have a document that demonstrates this additional feature of Leopard and Snow Leopard?

A Yes.

THE WITNESS: If you'll show the next page, please.

A Here's the same e-mail that we talked about before, but now instead of the sender and the date sent only being -- showing up in the metadata store, you'll find that those words are also included in the content index.

Q (By Mr. DiBernardo) Thank you.
Okay. Dr. Levy, let's turn to what you have on the poster board as Coverflow. Let's start by explaining how Coverflow is relevant to your opinion that Apple infringes.
A Okay. Well, Coverflow shows a three-dimensional interface that I believe infringes the 3-D user interface of the Gelernter patents.
Q Can you show us something that demonstrates what Coverflow is?
A Yes.
THE WITNESS: Please, the next page.
(Video playing.)
STEVE JOBS: Well, let me first show you Coverflow. And here's Coverflow view, and I can just scroll through my documents and see all my documents and find exactly what I'm looking for right here. It's really simple, and it's really, really helpful.
(End of video clip.)
A So that's a brief vision of how it moves. Anyway, he talks some more.
Q (By Mr. DiBernardo) That was kind of quick. Do you have another document that you can use to explain the different aspects and characteristics of Coverflow?
A Yes.

On the next page, here's an example of Coverflow as it appeared on my own system one day with some particular set of documents that were search results.

And here you -- let me see if we can get the right color. We have the center portion that is larger and closer to the viewer, and then we have the stacks going -- the stack to the left and to the right that have document representations stacked up and fading away as they get towards the sides.

So as you see, the image -- as the image moves towards the sides, there's an increase in the shadows between them. There's a fog effect that makes them look farther away.

They show perspective in the way that I'm going to show more in a bit, and there's a little bit less of the content shown on each one as you go out. And also the reflections in the tabletop sort of thing there also tend to fade out.

So those all give the impression of depth to this display.

Q (By Mr. DiBernardo) Are these characteristics that you just described of the Coverflow view reflected on your summary board?

A Yes. Under Coverflow, you'll see that there

are images of the documents here. There's a larger center image. The images recede to the side with changing perspective. And as we've seen in the demonstration so far, there's a way of sliding the stack.

Q Let's actually turn to that notion of sliding.

Can you give us a better sense as to how a person actually uses Coverflow?

A Yes.

THE WITNESS: If you'll go to the next page, you'll see there's an animation that gives an example.

(Animation playing.)

A This is how one would move through the stack of documents using Coverflow. And as each one is selected, it moves to the center and pops forward.

Q (By Mr. DiBernardo) You can see on the screen, Dr. Levy, there's a little horizontal bar under the document images. Can you explain what that is?

A Yes. This thing is called the scroll thumb, and that is one way to cause the stack to move. If you put your cursor over that and hold the mouse button down and drag it -- that's what they call it, dragging -- that will cause the whole stack to move. And there are other ways to cause that stack to move.

Q Okay. And is this notion of sliding reflected on your poster board?

A Yes, it is. That's the one that says: Sliding stack.

Q Dr. Levy, does Coverflow provide any benefits to Apple users?

A Yes. It's a very convenient way for the user to browse through the documents with this glance view popping up in the center as you move through the stack. And so that makes it easy to tell what kind of document it is.

Q Does Coverflow work with the Spotlight search you described?

A Yes. Yes, it does. Spotlight search results can be shown in the Coverflow view.

Q Thank you, Dr. Levy.

Let's move to the third and final Apple feature, Time Machine. Can you describe for us what Time Machine is?

A Yes. Time Machine is an archiving or backup facility.

THE WITNESS: Show the next slide, actually.

A So this is the picture I showed you before about archiving. And one of the ways you -- one of the

kinds of backup storage that there is, is the product sold by Apple called Time Capsule, and it's a -- it's a storage unit that you plug into your computer, and that's a place where Time Machine can put these backup copies.

Q (By Mr. DiBernardo) How is Time Machine relevant to your opinion that Apple infringes the Gelernter patents?

A Well, I believe that Time Machine infringes the automatic archiving aspect of the Gelernter inventions.

Q Do you have a document that demonstrates what's archived in Time Machine?

A Yes.

(Video playing.)

STEVE JOBS: Time Machine automatically backs up your Mac. If you change a file, that file is automatically backed up.

And we back up everything. We back up all of your photos, all of your music, all of your documents, all your files, your folders, your applications, your operating system, your software updates, everything. We back up absolutely everything.

(End of video clip.)

Q (By Mr. DiBernardo) Dr. Levy, is this video

your only support for the description of Time Machine?

A No. I have another document.

THE WITNESS: If you would show the next page, please.

A So here are -- here's an image from Apple's own documents, manuals, and a description of Time Machine and a couple of quotes.

Time Machine is an automatic backup, keeps an up-to-date copy of everything. How you find things is you select a date and let Time Machine find your search -- your results, and you can do a Spotlight search in those results -- in the Time Machine.

And the last quote, which is not highlighted here, shows that it doesn't let anything get more than one hour old. So every hour, it makes another backup so that anything older than that would be archived.

Q (By Mr. DiBernardo) Does Time Machine put anything else, other than documents, in its archive?

A Yes. In order to be able to do a Spotlight search in the archive, it has to put the metadata there as well. And so the metadata and the content index are also created in the archive.

Q Does that archive metadata include things like the date an e-mail was sent in the center of that e-mail the way you described earlier?

A Yes, it does.
Q Okay. Are these features reflected on your poster board, Dr. Levy?
A Yes. On the last two lines of this board, you'll see Time Machine has automatic backup, which corresponds to the archiving, and the fact that Spotlight search can be done in Time Machine corresponds to the searchable aspect of the automatic archiving.
Q Thank you, Dr. Levy.
Now let's turn to your detailed analysis of infringement of the claims of the Gelernter patents.
Do you have a document that tracks your opinion that Apple infringes the claims of the Gelernter patent?
A Yes, I do.
THE WITNESS: And with your permission, I'll --
MR. DIBERNARDO: With your permission, Your Honor, we'd like to show a summary board that we can use to keep track of these claims.
THE COURT: All right, as a demonstrative.
THE WITNESS: I don't need a microphone.
Can y'all see that?
No? All right. I'll get another easel.

Now can y'all see?

Q (By Mr. DiBernardo) Thank you.

A So this is a summary chart that shows the claims that we've asserted against the Apple products along the top, and then down the side are the products themselves that we claim infringe these patents.

Q Dr. Levy, I see that the first line, Tiger OS, Tiger is listed separately than Leopard and Snow Leopard. Can you explain why?

A Yes. We do not claim infringement by the Tiger operating system for certain claims starting from 22 on to the right. And so that's why those are crosshatched or grayed out.

Q Is there a difference between Tiger on the one hand and Leopard and Snow Leopard on the other?

A Yes. The Coverflow and Time Machine features were not introduced until the Leopard operating system.

Q And how about the Spotlight feature?

A The Spotlight feature is in both of them.

Q Dr. Levy, the first patent claim in the upper left is '227 patent, Claim 13. Let's start there.

Have you prepared any documents to demonstrate to the jury your opinion that Apple infringes Claim 13 of the '227?

A Yes, I have. And this is the -- Claim 13 of

the '227. Now this has eight parts to it. Each part is known as a limitation. And we're going to be going through these one by one, because we have to show how Apple infringes each and every part of it.

So don't worry about the fact that this type is a little small. We'll be repeating them one by one. And then on the right, I have the particular feature of the Apple operating systems, just as a summary, that is related to that particular limitation.

Q Before we get into a detailed analysis, Dr. Levy, can you explain generally what Claim 13 covers?

A Generally, Claim 13 has to do with streams and the operation of streams. And so, therefore, only the Spotlight feature is involved in these aspects.

Q Okay. You mentioned Claim 13 covers a method.

What performs that method?

A Well, the method is performed by the computer and the software in it working in response to something that a user is doing on the computer system.

Q Let's turn to the first limitation, (a). Do you have an document that explains your opinion on how Apple's Tiger, Leopard, and Snow Leopard operating systems include that limitation (a)?

A Yes.

THE WITNESS: The next page, please.

A So here we have Claim 13, and we've numbered these (a) through (h), so -- you may not be able to see that, but this is limitation (a).

And it's a method which organizes each data unit received by or generated by a computer system comprising the steps of, and then each of the other limitations are those steps.

So this -- yeah. Go ahead.

Q (By Mr. DiBernardo) Can you first describe just the format, the layout of your page?

A Yes. For each of these limitations, we're going to have the -- in the upper left, the blue part, the -- the limitation itself exactly as it reads in the patent.

And then down below that, we will have a -- any terms that are in there that were construed by the Court so that we make sure that we follow those.

And then on the right, we'll have either information that helps to show how I determined that they infringe.

In this case, we have a diagram of the Spotlight Store, which is a key part of this.

Across the top, of course, I also have the theme or the general idea that's expressed in that claim

limitation.

Q And could you just summarize how Apple meets this limitation (a)?

A Yes. As I've described already to you, the Spotlight Store organizes the data units that come into the computer or are received -- or are generated by the computer.

And so in the way that I've described, everything that's there is in the Spotlight Store, and that's how that meets this claim limitation, which will be shown in more detail as we go through the others.

Q Thank you.

Let's the turn to limitation (b). Do you have a document that explains your opinion that Apple's products include limitation (b)?

A Yes.

THE WITNESS: The next page, please.

A So then the first step is: Generating a mainstream of data units. And we'll talk about the substream in a little bit. That mainstream is for receiving these data units that are received or generated by them.

And so that's why I've -- and so mainstream has already -- has been construed by the Court as a stream that's inclusive of every data unit or document

received by or generated by the computer system.

Now, remember, the data unit means an item of information of interest to the user that the user considers as a unit. So this is what that's referring to.

And then a stream is used in that definition, and so a stream is a time-ordered sequence of documents that functions as a diary of a person's life and is designed to have three main portions: Past, present, and future.

So the support for this is that the Spotlight indexes everything, all of the files. The Spotlight Store holds all the metadata attributes. And as I've already explained, having those time-related metadata attributes and the operation of the search results make the Spotlight Store a mainstream.

Q (By Mr. DiBernardo) Can you remind us, where does that mainstream exist in the Apple's computers?

A It exists inside the Spotlight Store, along with, of course, the underlying files that are stored in the file system. So those are referred to in the Spotlight Store, so we think of them as being in the Spotlight Store.

Q Dr. Levy, limitation (b) also refers to substreams for containing data units only from the

mainstream. Is it your opinion that Apple's operating systems include this limitation?

A Yes. On the next page, we're still looking at claim limitation (b), but now we're focusing on the fact that it generates at least one substream, and the substream is for containing data units only from the mainstream.

So as we've seen -- I'm sorry.

So the Court's definition of a substream is a stream that is a subset of data units or documents yielded by a filter on the screen and the filter identifying certain documents within the screen.

Well, that's just a very good description of a search that we've described that selects certain documents out of that mainstream or out of the full set of all the data units on the computer system.

And so the Spotlight search results that are returned over here on the -- here (indicates) are composed of substream that's in a data structure that's returned through the API, and thus, it meets this claim limitation.

Q Thank you.

And do you have a document that explains your opinion that the Apple operating systems include limitation (c)?

A. That's on the next page. No. I'm sorry. We actually have an example of the substream, and I'd like to explain this in a way that we can grasp in everyday life.

So if you were a schoolteacher and you wanted to organize the students in your class, it would be like an application program that's going to request something from the main office at the school. Give me a class list.

And so this would be an example of a form you might fill out that gave the grade number you're teaching and the teacher's name and said: I want to -- I want to have my students sent back to me that are going to be in this class listed by their birth date.

You might be interested in that because you want to order your class by the age of the students. So this form represents the API or the way in which a Spotlight search or a search would be done. So you would just send this form down to the main office, and then it would get filled out based on the mainstream of information that was stored in the office, which would have all of the students.

So on the next page, this is the way it might come back to you with those search results. So here are the eight students in this case, who are in your class,

and they are organized in a time-ordered substream by birthday with the oldest first and the youngest last.

And so this would be the equivalent -- this is an example of a substream.

Now, I want you to notice that this form is not what's necessarily displayed, and so the equivalent for a teacher might be: I get this form back, and I copy these into my class book and maybe later on assign the seats for the students in my class.

So it's not -- it's not necessary to be in the final form in which it's displayed in order to come back as a time-ordered list.

So that substream is still in the data structures of this computer. And there's an example that you might find in -- something like that in everyday life.

Q In your example, Dr. Levy, do the birthdays correspond to anything in the Spotlight Store?

A Yes. These birthdays correspond to time-based information or related to what we call a timestamp?

Q And is that time-based information stored in the Spotlight Store?

A Yes, it is.

Q Where is it stored?

A It's stored at least in the metadata store and

in the Leopard and later operating systems, also in the content index.

Q Thank you.

With that, let's move on to the next limitation, (c). Do you have a document that explains your opinion regarding limitation (c)?

A Yes. On the next page, it describes receiving data units from other computer systems. And remember, a data unit is any item of significance to the user that the user considers as a unit. And of course, these are things like e-mails or maybe other documents.

And ways that the computer system might receive things from outside would be by e-mails coming in, or another way might be over the internet by downloading some file from a website. Those are just a couple of examples.

And so since all Apple computers do that, they do meet this claim limitation.

Q Thank you.

Let's move on limitation (d). Can you explain your opinion as to why Apple's products include this limitation?

A Yes. This limitation is generating data units in the computer systems. And so there are many ways to generate a new data unit in your computer system, and

some of them would be like writing an e-mail and sending it or writing a letter and saving it in the system or putting something in the calendar.

The example shown here is address book card that has a name and an address for Steve Jobs in this case. That would be an example of a data unit that was created in my computer system.

And so this is -- this shows that Apple computers do generate data units and meet this claim limitation.

Q Dr. Levy, where did that example on the right come from?

A That example comes from an Apple document that shows an address book example.

Q Thank you.

Let's move on to the next limitation.

Can you explain your opinion that Apple's products include this limitation?

A Yes. This one says: Selecting a timestamp to identify each data unit.

Now, the parties have defined a timestamp to identify as a date and time value that uniquely identifies each document.

Now, you're going to hear a lot more about this one, because there's a lot of argument about

whether this exists in the computer system.

However, I want you to remember that the timestamp to identify is referring to identifying where in the time-ordered stream a document is going to be placed. So that's the key thing about this.

So now, whenever a data unit is created by or received by the computer system, it does select a timestamp to identify the data unit within the stream.

What timestamp it chooses is a matter of choice depending on what kind of data unit it is and some decisions they made in the operating system about what should be appropriate for a given document.

But it's important to remember that -- and they may have multiple timestamps, like a creation date and a modification date and other possible dates.

So this timestamp, as we've -- I've found it in the system is comprised of date and time information, such as one or more of those dates that I just described.

Now, in addition, just in case two of those data units have the same date and time information, then there's an additional piece that's used as a tiebreaker; that is, so that when we get the time sequence data units, they always get sorted out in the same order.

So that tiebreaker is another little piece

that's used within the time-ordered stream to form a timestamp.

Q You mentioned this tiebreaker, Dr. Levy. What is the tiebreaker in the Apple operating systems?

A In the Apple operating system, there's an identifier known as the CFUUID, which is used as a tiebreaker when the other time and date information happen to be the same.

Q When -- when does this -- you referred to a timestamp Dr. Levy. When does the Apple computer assign a timestamp?

A Well, it assigns a timestamp when the data unit is either brought in or is created in the computer system, and it may update the timestamp for things like modification date as things happen to that data unit or document.

Q You were here in court today and yesterday, correct?

A Yes, I was.

Q And did you hear Dr. Gelernter's testimony regarding timestamp?

A Yes, I did.

Q And does his testimony relate to what you've been talking about as timestamps?

A Well, in some ways. I think he was asked

about how you might assign timestamps to things that came in all nearly at the same time, and I believe he answered that they might be slightly different times.

But even if they were the same time, we would just -- the stream aspect would use a tiebreaker to determine the order.

But I also heard Dr. Gelernter talk about a whole bunch of photographs where you couldn't tell when they were taken. But, in fact, these days, with digital photographs, almost all of those photographs come in with a timestamp already with them that tell you when the photo was taken, as well as a lot of other information about each photograph.

And so perhaps Dr. Gelernter wasn't thinking about the modern cameras.

Q And do you have an understanding as to whether Dr. Gelernter was describing timestamps in the context of what's described in the body of the Gelernter patents, as opposed to the claims?

A Yes, I think so. Dr. Gelernter was describing the general idea of timestamps as described in the patent specification.

Q That whole discussion sounds a little complicated. Can you give us an example of this type of tiebreaker?

A Yes.

THE WITNESS: If you'll go to the next page, please.

A So here's the class list as it came back, and I don't know if you noticed this before, but right here we have two students with the same birthday.

Well, now, I, as the teacher, don't really care which one comes first, but I do care that every time I see this time-ordered list, they come out in the same order.

And so in this case, a tiebreaker may have been used to make sure they always come out in the same order. That could have been something like the student ID number, if they had one, and that would be used only when the tiebreaker was needed.

And that's very similar to what the Apple systems do. They use a tiebreaker number only when they need to differentiate two things that seem to have the same time and date value.

Q (By Mr. DiBernardo) That tiebreaker is not shown on that class form, is it?

A No, it's not.

Q And why is that?

A Well, because it's not really important to the person looking at this how it determined which of those

two to sort first. As long as they don't keep switching around, that's fine.

Q Where does that tiebreaker exist?

A The tiebreaker exists down in the main office, right? And so it gets applied when the office produces this list so that it always comes out the same way.

So in that sense, it's applied when the Spotlight search results are composed.

Q Dr. Levy, is this tiebreaker important to this case?

A Yes. We'll find that there's a lot of argument about whether there's really a timestamp in the system; but this is how I show that the timestamp, as we've identified it in the Apple system, actually meets the claim limitations.

Q Do you know if Dr. Feiner, Apple's expert, agrees with you that timestamps can include these types of tiebreakers?

A Well, I don't know if he agrees with me on many things, but in his deposition he did give examples of using this kind of another number as a tiebreaker to make a unique time identifier or timestamp.

Q Are these types of tiebreakers well known in the computer industry?

A Yes, they are. They're common knowledge

amongst those who knew about timestamps and computer software.

Q Thank you, Dr. Levy.

Let's move on to the next limitation. Do you have a document for the limitation (f)?

A Yes.

THE WITNESS: The next page, please.

A Limitation (f) says: Associating each data unit with at least one chronological indicator having a respective timestamp.

Now, chronological indicator is a data structure containing at least a timestamp. So you can just think of it as a container that holds that timestamp in it.

Now, the Spotlight Store and the Metadata Store has all of the metadata attributes about the files, and so the Spotlight Store, because of that, contains data structures with a timestamp that identifies the data unit within the time-ordered stream. And so, therefore, it meets this claim limitation.

Q (By Mr. DiBernardo) The Court's definition of chronological indicator, it says that it's a data structure containing at least a timestamp.

Can you remind us what that data structure is?

A Yes. That data structure would be the

Metadata Store itself or perhaps the content index in the case of Leopard, which also contains the timestamp information, together with the information that tells me how to find the file that has that information in it. That would be something called a pointer.

Q A pointer. Can you describe for us what this pointer is?

A Yeah. A pointer is just a number or something that tells me how to go get the original document itself.

Q Do you have an example of a pointer like this?

A Yes.

THE WITNESS: If you'll go -- show the next slide.

A Once more with the class list, after the teacher gets the class list back, they might assign seats to the students.

Now, this would probably not be on this form but might be in the class book, but that would be a pointer to where the student actually is. What you have here is not the student, just this information about the student.

Q (By Mr. DiBernardo) Thank you, Dr. Levy.

Let's move on to limitation (g). Would you please explain your opinion as to how the Apple products

include limitation (e)?

A Yes. This one reads: Including each data unit according to the timestamp in the respective chronological indicator in at least the mainstream.

Now, this is just saying that the -- every -- each data unit is put into the mainstream according to its timestamp value.

And so since the Spotlight Store has the time-related information associated with each document in the Metadata and/or the Content Index Store, and everything's there, the mainstream is in the Spotlight Store, and it's included there, according to its timestamp.

Now, you may wonder what that means. According to the timestamp, I believe just means that it's got the timestamp information in there, and whenever you go to get anything out of there, it comes out in time order.

And that is the case with the API, the substreams that you pull out. It's kind of like having a box where you've got everything in there, and every time you reach in to get anything, it comes out in time order. So that, to me, says it's there, and it's time-ordered, because all that information is there.

But in addition, in the Leopard operating

system, that chronological indicator is also in the content index. And in the content index, it's actually laid out in time order. And so there is a literal data structure there, which is time-ordered for the mainstream.

Q Thank you, Dr. Levy.

Let's move to limitation (h). Do you have a document explaining your opinion on that limitation?

A Yes. This one says: Maintaining at least the mainstream and the substreams as persistent streams.

And here persistent streams means streams that are dynamically updated.

So we've talked about what that means, that as new things come in, they are automatically updated. Not only the contents of the Spotlight Store, but the search results are dynamically updated.

And so the system meets this claim limitation.

Q Thank you, Dr. Levy.

And with that, the last limitation, is it your opinion that Apple's Tiger, Leopard, and Snow Leopard operating systems infringe Claim 13?

A Yes. Since we've completed each of the eight claim limitations and found the ways in which the Apple products infringe, that means they infringe Claim 13.

Q You mentioned we'd be using your poster board

to track our progress. Can we do that?

A Yes, please. If you'll check off Claim 13 for the Tiger and Leopard operating systems.

MR. DIBERNARDO: Your Honor, if I may?

THE COURT: Yes, you may.

Q (By Mr. DiBernardo) Thank you, Dr. Levy.

The next claim on your chart is Claim 22 of the '227. Do you have a document that demonstrates your opinion that this claim is infringed?

A Yes, I do.

THE WITNESS: Can you show the next page?

A Claim 22 is what's called a dependent claim. And I think you heard the Court describe to you what a dependent claim is. It's a claim that refers to another claim and then adds on something more.

So this Claim 22 has to have all of the eight claim limitations of Claim 13, and in addition -- in addition, it has archiving data units having timestamps older than a specified time point.

And this is going to refer to Time Machine, as you'll see in a moment.

THE WITNESS: Do we have another document on this? Yes. Thank you.

Q (By Mr. DiBernardo) Thank you.

A So I described to you how Time Machine

archives data units by copying them to a separate storage unit. It does this every hour every day.

Incremental backup, that just means another copy is made automatically.

So this means that everything that's older than an hour will be backed up automatically, and, therefore, the system does archive data units having timestamps older than a specified time point, mainly an hour older than now.

Q Thank you.

So is it your opinion that Apple --

A With that creation, they do that, yes.

Q Thank you.

So is it your opinion that Apple infringes Claim 22?

A Yes, it is.

Q And what products infringe?

A That would be the Leopard and Snow Leopard operating systems and the computers that use them.

Q Thank you.

A That's because Time Machine was introduced with the Leopard operating system.

Q And may I reflect that infringement on the board?

A Please.

MR. DIBERNARDO: May I, Your Honor?

THE COURT: Yes, you may.

Q (By Mr. DiBernardo) Dr. Levy, the next claim on your board is Claim 1 of the '427 Gelernter patent.

Is it your opinion that Apple infringes Claim 1 of the '427 patent?

A Yes, it is.

Q Do you have a document that demonstrates your opinion?

A Yes.

THE WITNESS: If you'll show the next page, please.

A Now, this is Claim 1 of the '427 patent, and this is, again, something with eight parts, and we're going to go through these one by one.

And you'll see on the right that this will involve not only the Mac operating system but Spotlight, Time Machine, and Coverflow. So it's going to cover all three features. It's going to be related to all three features.

Q (By Mr. DiBernardo) Let's turn to limitation (a) then. Can you explain your opinion that the Apple product includes limitation (a)?

A Yes. Now, this one reads: A stream-based operating system utilizing subsystems from another

system running a computer, and then it's going to go on.

Now, first of all, a stream-based operating system is an operating system that is based on a time-ordered sequence of documents and so on. And that's describing the words that make up a stream definition.

And so any operating system that has streams implemented in them is a stream-based operating system for the purpose of this claim language.

So as we've seen, Spotlight implements a stream; therefore, we're talking about a stream-based operating system.

And in addition, this talks about utilizing subsystems from another operating system.

Now, here, we have a chart from one of Apple's manuals describing the Mac OS 10 -- I'm sorry; this is the way they pronounce it -- OS 10 operating system, and it says it can be viewed as a set of layers. And it says, also: At the lower layers are the fundamental services.

Now, the bottom layer is a kernel. That's the name they use for this bottom layer in general, and it's called Darwin. It's the main portion of this operating system, and it comes from another operating system.

Darwin was originally part of the UNIX

operating system as it says here, and it is the lowest layer within the OS 10 operating system.

And, therefore, this meets this limitation, because this stream-based operating system, the whole thing utilizes subsystems from this other operating system.

Q Thank you for that explanation.

Let's move on to the next limitation, Dr. Levy. Can you explain your opinion that limitation (b) is included in the Apple products?

A Yes. Now, this one reads: A document-organizing facility receiving documents created by diverse applications and diverse formats specific to the respective applications.

Now, we've already talked about this. The applications are these application programs, and the diverse formats just refers to the fact that a letter and an e-mail are in different formats. They don't look the same. They're not composed the same.

And the Spotlight Store is this document-organizing facility. And, therefore, as we see here, here's some examples of the diverse formats of documents that are received by and organized by the Spotlight Store, and therefore, it meets this claim limitation.

Q. Thank you, Dr. Levy.

Let's turn to the next limitation of Claim 1, limitation (c). Do you have a document that explains your opinion that Apple's Leopard and Snow Leopard operating systems include this limitation?

A Yes. The next page, it says: The document-organizing facility automatically associates respective selected indicators with the received documents.

Now, selected indicators is defined as data structures that contain information relating to those respective documents. And so as we've already seen, the metadata is a kind of indicator that has information relating to the document.

And so this is referring to metadata, and the Spotlight Store holds all the metadata attributes, and some of those examples are -- that are time related are the creation date, modification date, due date, that I've shown the actual internal names for those metadata items here taken from one of Apple's manuals.

And so these are associated with the documents that are received by that way I told you where it has pointers. It says, if you're looking for this metadata, there's where the document is.

And so that meets this claim limitation (c).

Q Let's move on to limitation (d) then. Can you explain how Apple's products include this limitation?

A Yes. Automatically archiving the documents and indicators in consistent format for selective retrieval. Well, that's a fancy way of saying, once you store the things away, they're archived with some of the metadata so that you can get things back by looking at the metadata.

Now, remember, their archiving is copying or moving documents to a secondary storage medium. We've described how Time Machine does that.

And in addition, not only does it store a copy of everything, as it says here, but it also allows you to do a Spotlight search. And therefore, we know that the metadata and the content index are created on the Spotlight's Time Machine volume -- backup volume, and you can do a Spotlight search on it.

And, therefore, it has archived the documents and the indicators and, therefore, meets this claim limitation.

Q Thank you.

Moving to limitation (e), can you explain how the Leopard Tiger and Snow Leopard meet this limitation?

A Yes. This limitation says: Creating -- automatically creating information specifying respective

glance views and said respective document representations of said documents.

Now, remember, that the definition of a glance view is an abbreviated presentation of a document. It's not the whole thing that you get when you retrieve the document.

And a document representation is a graphical depiction of a document or data unit.

And so here, we now come for the first time to Coverflow, which provides this kind of glance view and document representations as we've already talked about.

And so glance -- Coverflow meets this claim limitation by providing glance views and document representations.

Q Thank you, Dr. Levy.

Moving on to limitation (f), could you explain your opinion with regard to this limitation?

A Yes. And you're going to hear a lot about this one, because we argued a lot about it. What is a receding foreshortened stack?

So this says: A display facility displaying at least selected document representations -- that means some of the images -- as a receding foreshortened stack of partly overlapping document representations, such as -- such that only part of each displayed document,

after the first -- document representation, after the first in the stack, is visible to the user.

And so as we've seen here in the Coverflow display, we have a receding foreshortened stack that the first document in the stack is the only one that's entirely visible to the user, or in some cases, even that one is not.

And as Apple's Mr. Goossens described, the impression to the viewer is that the stack is receding away from the viewer to the left and the right with perspective effects, which are provided by shading, shadowing, and angling of the top edges of the document representations.

And so Coverflow display meets this claim limitation.

Q Dr. Levy, is this the only image from Coverflow that satisfies this limitation (f)?

A No. I'd like to show another one, please.

Now, here's an example of photographs that are being shown in Coverflow. And you'll see as the image here moves off to the side, that the perspective effects on it actually cause the top level -- top edge to change its angle and to get longer.

So that's another example of how Coverflow provides perspective effects and moves the documents

Q That went by kind of quickly. Would you like to explain that again for us?

A Sure. Would you like to run it once more?

So here we're showing how, as the image moves out to the side, it's actually changing its apparent image to the way -- to the viewer of this scene, and the top edge is getting longer, and therefore, the angle is getting shallower.

And that's a perspective effect that gives the impression of the thing rotating away from you, which, along with the shading and -- of this and a few other effects, makes it look like it's receding.

Q Is this change in length important to your opinion?

A Yes. This is a demonstration of the effects of perspective being applied to the document representation. And that, of course, is happening even in the static image here where the top edge is angled down and the bottom edge is angled up.

That's perspective, but in addition, that perspective is changing as it moves out to the side.

Q Does Apple's expert, Dr. Feiner, agree with you, that Coverflow shows a receding foreshortened stack?

A No. I think he's quite opposed to that idea.
Q And do you disagree with Apple's expert?
A I do.
Q Can you summarize why you disagree?
A Well, I think Dr. Feiner, as I recall, refers to the height of the document, and some of the other things that are cited in his reasons why it's not changing or receding has to do with the apparent closeness of the image to the viewer.

But, in fact, I've reviewed the testimony of -- I think it's Mr. Goossens, where he says that it passes the descriptions off to a rendering thing called OpenGL, which actually takes into account the fact that it's moving away from the viewer to the side and, therefore, getting farther away and presents it, therefore, in a different angle as it goes.

Q Thank you, Dr. Levy.

Let's move on to the next limitation, limitation (g). Can you first explain what this limitation covers?

A Yes. Now, this one covers the popping out of the glance view as you the pass the cursor over the stack.

So this one reads: Said display facility further displaying a cursor or pointer and responding to

user-controlled sliding without clicking of the cursor over the said displayed stack to display a glance view of a document whose document representation is currently touched by the cursor or pointer.

So this one is referring to the fact that when you slide the pointer over the stack, your -- the glance view pops out.

Q Dr. Levy, do you have an understanding of what infringement under the Doctrine of Equivalents is?

A Yes.

Q Can you --

A Yes. Doctrine of Equivalents is a part of the patent law, as I understand it, which says that if an accused product has an equivalent that the difference is only insubstantially from the claimed invention, then it's also covered by that invention under the Doctrine of Equivalents.

Q Do you have an understanding of the purpose of this Doctrine of Equivalents?

A Yes. This prevents someone who -- from taking someone's invention by making some very minor change to it that's not really substantial.

THE COURT: Counsel, how long do you anticipate you have to continue on your direct examination?

MR. DIBERNARDO: Certainly till about -- till about 5:00. We'll try and pick it up at least, but --

THE COURT: All right. How's the jury doing? Would you like to take a 10-minute recess to stretch your legs?

JUROR: Yeah.

THE COURT: Okay. We'll take a 10-minute recess until 4:35.

COURT SECURITY OFFICER: All rise.

(Jury out.)

(Recess.)

(Jury out.)

THE COURT: Bring the jury in, please.

Did y'all get your times worked out yet?

MR. CARROLL: We did, Your Honor. We're waiting for Apple to bless them.

MR. RANDALL: I didn't hear.

MR. CARROLL: We gave those to your folks back there about an hour ago.

MR. RANDALL: In the middle of examination.

MR. DIAMANTE: We'll do it very quick.

COURT SECURITY OFFICER: All rise for the jury.

(Jury in.)

THE COURT: All right. Please be seated.

All right. Counsel, you may proceed.

MR. DIBERNARDO: Thank you.

Q (By Mr. DiBernardo) Dr. Levy, before the break, you were talking about the Doctrine of Equivalents.

Is it your opinion that Coverflow meets this limitation?

A Yes, it is.

Q Is it your opinion that Coverflow meets this limitation under the Doctrine of Equivalents?

A Yes, it is.

Q Can you explain for us generally what's shown on the right of your slide?

A Yeah, on the right, I'm showing the schematic, a part of that Figure 1 for the Gelernter patents, which shows the sliding pointer, and the glance view popping out with the stationary stack.

And in the bottom, I'm showing Apple's Coverflow view, which essentially has a sliding stack, and it's a glance view that pops out in the center.

Q And what is it in the Coverflow view that you consider to be the equivalent?

A In the Coverflow view, instead of having a

moving pointer and a stationary stack, we have a moving stack and essentially a stationary pointer, because the user knows that he's looking always at the center here.

Q Do you have something to show us that demonstrates why you consider these to be equivalents?

A Yes. I'd like to show an animation of these two operating together.

Here's the Gelernter stack at the top, and the Coverflow view flowing by, popping by, at the bottom. And I believe that these are equivalent.

Q Dr. Levy, does the Coverflow display -- display a pointer?

A It does not display a literal pointer, but I believe it has the equivalent, because the user always is looking at the center where the glance view is going to pop up, and that is where the cursor or pointer is by default.

Q Does Apple agree with you?

A No. I think they're quite -- disagree with that idea.

Q Can you give us an example, Dr. Levy, to further explain your opinion that these are equivalents?

A Yes. Well, here, we have the sliding cursor, the stationary stack. And then in Coverflow, we have the stationary pointer with the moving stack.

And an example of how that might be is shown in the next slide.

Q Before we move on --

A Before we do that --

Q -- I wanted to ask you one other question.

A Yes.

Q The claim limitation refers to sliding without clicking.

Can you explain how that's met by the Coverflow?

A Yes. So in the Gelernter patents, one moves the cursor without clicking on each document. Now clicking means, as I under it, with a mouse would be pressing the button down and letting go. A click is a down-and-up action.

And so you don't have to do that with this cursor on the stationary stack.

Likewise, with the Coverflow, you don't have to click on each document in order to get it to move -- or pop up to the center. You can achieve that by moving this scroll bar thumb, by dragging it, or you can use a gesture of two fingers across or down a touch pad, which will cause the stack to move.

Q Can you briefly describe for us what a touch pad is?

A Yes. A touch pad is a little square area on a laptop computer that serves the functions of -- several functions, but one of them is allowing that gesture which causes the sliding without clicking of this stack.

Q That gesture is just the user touching that pad?

A It's touching it with two fingers, that's right, and moving the fingers along.

Q Dr. Levy, can you give us another example to further explain why you consider these to be equivalents?

A Yes. I'd like to show an example of why I think the moving stack and the stationary stack are equivalent by showing another example that's quite common that we know about, which would be the next slide.

Now, here we have a bathroom scales where the pointer moves and the dial stays stationary. In the other one, the dial moves and the pointer stays stationary.

And in my opinion, these are equivalent in the same way that the Coverflow and the Gelernter stack are equivalent. It really doesn't matter to the person looking at this which one moves. They really still see the same result, getting the same function with the same

result here.

Q Thank you, Dr. Levy.

Let's move on to the next limitation, limitation (h).

Can you explain your opinion with regard to this limitation?

A Yes. Now, this one is about the stream-based operating system, which we've already described, utilizing subsystems from this -- another operating system, which I've already described as this lower layer.

And it says in particular, there are operations, including writing documents to storage media, interrupt handling, and input/output. And these are some of the functions that are done in this kernel -- or handled by this kernel, Darwin, at the bottom layer of the Apple operating systems. And, therefore, it meets this claim limitation.

Q Thank you, Dr. Levy.

Having gone through the last limitation, limitation (h), is it your opinion that Apple's Leopard and Snow Leopard operating systems and the computers using them infringe?

A Yes, it is.

Q Can I reflect that opinion on infringement on

the board?

A Yes, please do.

MR. DIBERNARDO: Your Honor, may I put that on the board?

THE COURT: Yes, you may.

Q (By Mr. DiBernardo) Dr. Levy, the next claim on your board is Claim 8 of the '427.

Do you have a document that summarizes your opinion on Claim 8?

A Yes, I do.

THE WITNESS: The next page, please.

A Now, this Claim 8, again, has eight limitations, but now, since we've already seen a lot of this material and the information included in them, what I'm going to do is compare them to Claim 1 of the '427 that we've already been through in detail.

THE WITNESS: I don't know if you want James to expand maybe the --

A Well, first of all, let me summarize.

So I'm going to show how claim limitation (a) and (h) have a difference from Claim 1 and then claim (f) has a difference from Claim 1.

THE WITNESS: So if you could maybe expand --

MR. DIBERNARDO: James, can you please

expand the top half of that line? Should make things easier.

A So what's different in claim (a) and in claim (h) -- I mean, limitation (a) and limitation (h) is instead of saying a stream-based operating system, it says a controlling operating system.

And we understand a controlling operation -- operating system to mean an operating system that utilizes subsystems from another operating system. And so that's really just another way of saying like the rest of claim limitation (a) says.

The fact that it doesn't say stream-based means that at least at this point it doesn't require that it has streams.

THE WITNESS: Okay. And then if we can expand claim limitation (f).

A In any case, what this says -- it says display facility displaying at least selected runs of subdocument representations, but it doesn't mention the receding foreshortened stack.

And so this claim limitation is broader, allows more things to infringe than the one that requires a receding foreshortened stack.

Okay. And so since we've already shown for the -- the Claim 1 all the rest of these, for those

reasons the Apple products infringe this Claim 8 as well.

Q (By Mr. DiBernardo) Dr. Levy, let me make sure I understand your description of limitation (f). Limitation (f) of this claim does not include a receding foreshortened stack, correct?

A That's right.

Q And so in that regard, is this claim broader?

A Yes, it's broader. So even if the jury decides that Apple's products, like Coverflow, do not have a receding foreshortened stack, which I believe they do, then it would still meet this claim limitation that doesn't require a receding foreshortened stack.

Q Thank you, Dr. Levy.

So is it your opinion, then, that the Apple Leopard and Snow Leopard operating systems and the computers using them infringe this claim?

A Yes, it is.

Q May I reflect that opinion on your poster board?

A Yes, please.

Q Let's turn to next claim, Dr. Levy, Claim 16 of the same patent, '427 patent.

Do you have document that explains your opinion?

A Yes.

THE WITNESS: The next slide, please.

Q (By Mr. DiBernardo) Can you explain what this claim covers?

A Yes. Generally, this claim covers the document organizing facility and the display, which we'll go over here now in more detail.

And, again, because this is similar to and related to Claim 1 of the '427 patent, I've just shown the differences schematically here by crossing out the parts that don't show up in this claim or how they're changed.

So, first of all, for claim limitation (a) and claim limitation (f), for change of languages, not stream-based but controlling, that's the same as we just saw for claim limitation 8 (sic), and so we don't really need to describe those further.

This also in -- claim limitation (b) covers a document organizing facility associating the indicators with received or created documents. We've already talked about those, but this one leaves out the diverse formats.

And so in that sense, it's a broader claim and covers a little bit more.

Also, I show in this blank line in the middle

that the archiving is not included in this compared to Claim 1. And so this claim does not require archiving. And then again in claim limitation (d), we have the fact that receding foreshortened stack does not occur, only the selected document representations.

And so this, likewise, is a broader claim than Claim 1. And for the reasons I've already given for the rest of these, this claim limitation is met by the Apple operating system Spotlight and Coverflow.

Q And by that, you're referring to the right-hand column of your slide?

A Yes, I am, just to show that summary.

Q Thank you.

Can I reflect this opinion in your poster board?

A Yes, please. This is Claim 16.

Q Let's turn to the next claim, Dr. Levy, Claim 18 of the same '427 Gelernter patent.

Is it your opinion that this claim is also infringed by Leopard and Snow Leopard?

A Yes, it is.

Q Can you explain your opinion?

A Yes. Now, this Claim 18 is a dependent claim. That means it says the same as Claim 16, except one more limitation. And this new limitation is limitation (g).

Now, we put the receding foreshortened stack back in, and so compared to Claim 16, this one adds on a receding foreshortened stack. And that is, as I've explained before, covered -- infringed by Coverflow and, therefore, the system infringes this claim as well.

Q Thank you, Dr. Levy.

Can I reflect this opinion of infringement on your chart?

A Yes, please. Claim 18.

Q Let's turn to Claim 18 of the '427 patent, the last claim in the '427.

So is it your opinion that this claim is also infringed by Leopard and Snow Leopard operating systems?

A Yes, it is.

Q Can you please explain your opinion?

A Yes, I will.

Now, in this claim, I'm comparing Claim 25 to Claim 1 again, just to show you the differences and so we can understand them relative to Claim 1, which I've already explained.

We have the document stream operating system. We have the document organizing facility. In here, the word selective is not used, but chronological indicators with documents received from diverse applications and diverse formats.

And so here we know that some of those indicators are the metadata, and some of those metadata is time-based, and, therefore, there are chronological indicators, the data structures that contain timestamps in Spotlight, and, therefore, that claim limitation is met.

In addition, the archive part is omitted compared to Claim 1, and so we don't require the Time Machine part to infringe here.

And then in the next claim limitation, (c), we have creating information specifying glance views and specifying document representations. And so in Coverflow, we know that these glance views and document representations are shown.

So, of course, there must be information specifying them in the system, and, therefore, this claim limitation is met.

So the rest of these claim limitations are the same as Claim 1 and, therefore, they are all met by the Apple systems.

Q Can I reflect your opinion on your poster board, Dr. Levy?

A Yes, please.

Q Let's turn to the next claim, Claim 1 of the '313 patent.

A Now, this claim -- I'm sorry. Claim 1 of the '313 patent.

Now, this one is going to involve Spotlight, Time Machine, and Coverflow, and so this one we're actually going to go through each one, because it's a new claim, and we really need to review each one.

But in general, this is about streams receiving the documents in diverse formats, associating, archiving, creating glance views, and so on. So we've seen these terms, and so we'll review them one by one.

Q Dr. Levy, let's start then with (a) on this page. Can you explain how limitation (a) is met by the Leopard and Snow Leopard operating systems?

A Yes. So here -- I don't know if you want to expand it or not, but this is a method now, and so we're talking about a process that uses this facility that we see described in the other claim.

And so it's utilizing a document stream operating system, and so we've already talked about how that's met by the operating system that has Spotlight in it and that it utilizes subsystems from at least one other operating system.

And we've already talked about how OS 10 uses subsystems from another operating system. And so that claim limitation is met.

Q. Claim limitation (b), Dr. Levy.

A Yes. Claim limitation (b): Receiving documents from diverse applications and formats that are specific to the respective applications and differ between some of the applications.

Well, we've already seen how we get different kinds of documents that are in different formats. They're all put into the Spotlight Store, and so Spotlight, in that operating system, receives documents from diverse places.

Claim limitation (c): Associating time-based indicators automatically with those documents. And that we've seen. Spotlight does associate time-based indicators, timestamps, with each document.

And so that's met.

Claim Limitation (d) is the automatically archiving the documents. That's met by Time Machine, as we talked about.

Automatically creating glance views that are abbreviated versions of the respective ones of said documents. We've seen how Coverflow creates glance views.

Claim limitation (f): Displaying at least some of these documents as a receding foreshortened stack and so on. And Coverflow meets this limitation,

as we've described.

Further including displaying, sliding, and so on, we've shown how Coverflow meets this claim limitation under the Doctrine of Equivalents.

And then utilizing subsystems, we've explained how this happens with the operating system, and therefore, that claim limitation is met.

Q Thank you, Dr. Levy.

And can I reflect this opinion on your poster board?

A Please. Claim 1 of the '313 of the operating systems.

Q Dr. Levy, the next claim is Claim 2 of the '313. Is it your opinion that this claim is infringed?

A Yes, it is.

Q Can you explain that opinion, please?

A Yes. Claim 2 is a dependent claim, and so it has all of the requirements of the method shown in Claim 1 that we just went over.

And in addition, claim limitation (i) which is storing the documents -- said documents as a mainstream that's time-based and selectively generating a substream that are a subset of the documents in the mainstream matching selected criteria.

Now, that's a pretty good description of the

Spotlight search capability. And the mainstream, as we've shown, generates -- I'm sorry. Mainstream is generated by a -- the Spotlight Store and that it's time-based.

And so this claim limitation is met by the Spotlight, and therefore, this claim is infringed.

Q Thank you.

I see that you have the terms generating a substream highlighted. Can you explain how that's met by the Apple operating systems?

A Yes. The Spotlight search facility, as I explained, when you get a search request, the search results are returned in a time-ordered data structure, and that is the substream, and therefore, this is met.

Q Thank you.

And can I reflect this opinion on your poster board, Dr. Levy?

A Yes, please do.

Q Let's turn then to the next claim of the '313 Gelernter patent. Can you describe for us your opinion with regards to this claim?

A Yes. I believe this is infringed. This is Claim 3 of the '313 patent, and now we're dependent claim -- it's dependent on Claim 2, which is in turn dependent on Claim 1; and so all of the limitations of

Claims 1 and 2 have to be met, which we've already talked about.

And then in addition, this one says: Said generating a substream -- remember, that was like the Spotlight search results -- comprises generating a substream that persists unless selectively destroyed by a user.

So we're talking about a procedure here now. And when the Spotlight search results are returned to an application and displayed, then when something new comes in, the Spotlight search results are updated automatically, as I've talked about, and therefore, the substream, that is, that search results, is updated, and it persists; in other words, it's updated automatically.

And then unless selectively destroyed by a user, what that means, if you stop looking at the thing that you asked for, close the window and so on, then the search results go away, because you don't need them anymore.

And I put in here an extract -- a description of how that works from one of the Apple employees who said that when you close the live query window, it disposes of the query.

That just means that you don't need to search anymore, and so it's selectively destroyed by the user

in that way.

Q Thank you.

A So that meets claim limitation (j).

Q Thank you, Dr. Levy.

And should we update your poster board?

A Yes, please.

Q Let's turn then to Claim 9 of the '313 patent.

Is it your opinion that Apple's operating systems infringe Claim 9?

A Yes, it is. Claim 9, again, is a method, and so it talks about the steps of -- that are -- that occur in the system, (a) through (f). So I'll talk about each of these in turn.

The first one is a method of automatically archiving documents received in different formats -- and if I can read -- such that those archived documents can be searched.

And so we've seen how that Time Machine not only archives the documents but also the metadata and content information so that you can do a Spotlight search in the archive.

And so Time Machine meets this limitation of Claim 9.

And then in (b), it's receiving documents in diverse formats. And as we've seen, Spotlight does

that the different formats of documents.

Claim limitation (c): Automatically associating time-based indicators with the documents received. And we also have seen how that happens with the time-based metadata in Spotlight.

Then automatically archiving the received documents, together with said time-based indicators. This just means that the documents get put into the archive, along with the time-based metadata, so you can find them again.

That's met by Time Machine.

Then the receding foreshortened stack limitation that Coverflow meets by the Doctrine of Equivalents, and -- I'm sorry. Coverflow meets by its receding foreshortened stack.

And then responding to the sliding, and we've described how Coverflow meets that by Doctrine of Equivalents.

And so these claim limitations are met by the system, and therefore, that infringes Claim 9.

Q Shall we update your poster board?

A Please.

Q Okay. Dr. Levy, the last claim with regard to the operating systems. Let's turn to Claim 11 of the '313 patent.

A. So Claim 11 is shown here. It's a method as in Claim 9, so this is a dependent claim. It has two additional limitations, which I label here (g) and (h).

And so on top of Claim 9, (a) through (f), we have selectively searching said archived documents for documents meeting selected criteria.

Well, this is the operation of using Spotlight to search in the archive. And so Time Machine, using Spotlight, meets this claim limitation.

And then generating and displaying a substream comprising documents identified in that search -- in said searching, that substream being in time order and comprising documents in different formats matching respective different applications from which the documents originated.

Well, as we've seen, we have documents in different formats. The Spotlight search in the Time Machine gives search results back that are time-ordered and in a substream and then can be displayed, so you can find what you want.

And so Time Machine, using Spotlight for the search results, meets this claim limitation, and therefore, this claim is infringed.

Q Dr. Levy, this limitation is a little different than the ones we've seen. Do you have any

documents that demonstrate the basis for your opinion that this is met?

A Yes. I'd like to show at least one picture of Time Machine search results being shown here, and this is a picture of -- taking a real system that shows Time Machine using Spotlight to find search results. I guess I can point at it.

There's -- there's that -- I put the word agile in the Spotlight search here. We're in Time Machine looking at one of the backup copies. It found all the documents that have the word agile in them or related to that, and that shows how this operates with Spotlight in Time Machine.

Q Thank you, Dr. Levy.

Can we update your poster board?

A Yes, please.

Q Dr. Levy, the next Apple products referenced on your poster board are the iPhone, iPod Touch, and iPad. Is your opinion that these products also infringe the Gelernter patents?

A Yes, a couple of them.

Q Which claims of which patent?

A Let's see now. It's the -- I'm sorry.

Q It's a little difficult to read.

A It's up there, but -- it's the '427 patent,

which is Coverflow, and Claims -- let's see, 16 and 18.

Q 16 and 18.

A That's right.

Q And we'll address each of those?

A We will. Bear with us just a few more minutes.

Q Okay. Well, first, since these are new products, do you have a document that demonstrates what these products are, the iPhone, iPod Touch, and iPad?

A Yes. I thought you might like to see a photo of each of those products. Here's some taken from Apple's website or documents. In the upper left is Apple's iPhone. In the lower left is an example of Apple's iPod Touch. And on the right is Apple's iPad, I believe their latest.

Those two on the left do fit in a pocket. The one on the right doesn't. And these are three -- are the three types of products we're talking about now.

Q Is there a reason why you considered these products together?

A Yes, there is. It's because the operating system used in these are all from the iPhone operating system, also known as iOS in the Apple documents.

Q Thank you, Dr. Levy.

Let's turn now then to Claim 16. Can you

explain your opinion of how these products meet Claim 16?

A Yes. Now, Claim 16 is, again, talking about a controlling and operating system utilizing subsystems.

And in the iPhone iOS, there is a subsystem -- let me see, we need to go through these on separate slides, right -- from another operating system, and I'll point that out in the layers in a moment.

Anyway, Claims (a) through (f), which we've been through, and we'll show how these apply to each of the iPhone, iPod Touch, and iPad.

Q Thank you for that overview.

Let's turn to limitation (a) then.

A Well, here's claim limitation (a): Controlling operating system utilizing subsystems from another operating system.

And the iOS operating system also uses something called core OS, and this core OS is also derived from another operating system, just as the Darwin kernel was.

That is documented in Apple's own manuals, and, therefore, it is using subsystems from another operating system.

Q Thank you, Dr. Levy.

Shall we turn to the next limitation?

A Yes. Claim limitation (b) is a document-organizing facility associating selected indicators with received or created documents.

Now, remember, Witz is a software that organizes documents. The selected indicators are data structures that contain information that's like metadata and that a document is a data unit.

In the -- now, we know that in the iPhone, iPod and -- I'm sorry -- iPod Touch, and iPad, among the many functions that are there is the ability to act as a music library.

And at least for that, the iOS provides the iPod library with access to songs, and information about the song can be displayed, like title and artist. Those are some metadata associated with those documents, which are music tracks.

And we know that the information associated with each song is stored as a data structure, which is why the selected indicators, and therefore, these systems meet this claim limitation.

Q Thank you, Dr. Levy.

Let's go on to the next one then.

A This one is creating information specifying glance views and document representations.

And as you can see in this example of the

Coverflow view of -- of the music tracks being shown,
this has a glance view in the center and the document
representations to each side, as we've seen before.

And, therefore, we know, since you display
them, of course, the information about them is in there,
and therefore, this is -- this claim limitation is met.

Q Thank you, Dr. Levy.

One more question on this slide. Is that
center item just a glance view, or is it also a document
representation?

A Well, in this case, it's overlapping both the
stack on the left and the stack on the right, and so
it's actually part of each stack because of that
overlap. So it's also a document representation.

Q Thank you.

Moving on to limitation (d), can you explain
your opinion here?

A Yes. Here we have the display facility
displaying at least selected runs of said document
representations.

We have multiple document representations
being shown here, and therefore, this limitation is met.

Q And how about this limitation?

A Claim limitation (e) is: Displaying a cursor
or pointer responding to the user's sliding without

clicking.

Now, we've seen this one before, and I've described before how and why the Coverflow stacked movement is equivalent to the sliding without clicking over the stack in the Gelernter patents, and therefore, under the Doctrine of Equivalents, Coverflow meets this claim limitation.

Q Was this your bathroom scale of earlier?

A Yes. This is when I showed you the bathroom scales. That's the kind of equivalence we're talking about.

Q Let's move on then to the next limitation, limitation (f).

A So here controlling operating system using subsystems from another operating system, and it mentions three functions here. The Core OS is the bottom layer. It comes from another operating system, and it contains these functions. So this claim limitation is met.

Q Thank you.

Dr. Levy, can we reflect this infringement on your poster board?

A Yes, please. This will be Claim 16 for the iPhone, et cetera.

Only three to go.

Q Dr. Levy, let's take a minute and back up to one limitation.

Looking at the interface of the iPhone, iPod Touch, and the iPad, is that different than the interface on the Apple computers that you discussed earlier?

A Yes, it is. This interface uses a touchscreen. Where I talked to you about a touch-pad on a computer, this one, the screen itself is the touch sensitive.

And so the way you move the stack is by putting your finger on it and dragging it, and that causes the stack to move just by doing that.

Q And when you drag your finger across the screen, is there clicking going on?

A No, there isn't. So that does meet the sliding-without-clicking limitation.

Q Thank you, Dr. Levy.

Let's move then to the next claim, Claim 18.

A Claim 18 is a dependent claim, and it adds the receding foreshortened stack. We've already talked about how Coverflow meets this limitation, and here's an example.

And here, although there's not the shading, there is the same perspective applied, and therefore, I

believe this meets this claim limitation, and Claim 18 is infringed.

Q Okay. May I reflect that opinion on the board?

A Yes.

Q Dr. Levy, the next one on your poster board is for the Apple iPod Classic and Nano. Is it your opinion that these products also infringe the Gelernter patents?

A Yes, it is.

Q Is it your opinion that they also infringe Claims 16 and 18 of the '427 patent?

A Yes.

Q Before we get into your detailed analysis, can you describe for us what these products are?

A Yes. I have a photo of those -- examples of those two products. These are just examples. There are various models of each one. But on the left is the iPod Classic, and on the right is the iPod Nano.

Q Can you explain for us why you grouped these products together and separately?

A Yes. These both have this thing -- different kind of interface where there's this thing here, which is -- Apple calls a click wheel. And so that's the part of the user interface for these devices.

Q Dr. Levy, are you aware of any agreement

between the parties regarding infringement by the iPod Classic and Nano?

A Yes. Let me see if we can get this right. I understand that the parties have agreed that if the jury decides that the -- let's see, the sliding-without-clicking limitation is met and that this click wheel motion amounts to the same kind of sliding without clicking, then the -- these will be accepted as also infringing.

Q So you're saying that if the iPod Touch infringes Claims 16 or 18, that for the iPod Classic and Nano to infringe, Mirror Worlds only needs to show that the iPod Classic and Nano include the sliding limitation?

A That's right.

Q And do you have an opinion as the whether the iPod Classic and Nano do indeed include that sliding limitation of Claim 16?

A Yes, I do. I believe they do.

Q And do you have a document that demonstrates this?

A Yes.

THE WITNESS: If you'll show the next page, please.

A Here is the claim limitation about sliding

without clicking. I believe that moving one's thumb or finger around that circle without clicking, amounts to a sliding-without-clicking operation, and therefore, it infringes -- it meets this limitation on the Doctrine of Equivalents, just like the others.

Q (By Mr. DiBernardo) Thank you.

Dr. Levy, I have to ask you one more question. You called it a click wheel. How can that meet the limitation of sliding without clicking then?

A Well, I think they call it a click wheel. I have to speculate here. But I believe it's because there are certain places around the circle where if you do click on it, it does another operation.

But as far as the sliding goes, if you just press down and move your thumb around it, then that's what causes the sliding.

Q Thank you, Dr. Levy.

Can we check off any boxes on your poster board?

A Yes, please, Claim 16.

Q Thank you.

Q Dr. Levy, the last unchecked box, Claim 18 of the '427 patent, is it your opinion that this claim is infringed by the iPod Classic and Nano?

A Yes.
Q Would you explain that opinion?
A Yes. Again, we have here the receding foreshortened stack as the additional claim limitation in a dependent claim.
And as I've shown, I believe Coverflow meets this claim limitation in the iPod Classic and Nano, and, therefore, this claim limitation is met.
Q Thank you.
And may I check off that last box on the poster board?
A Yes, please. Thank you for your patience.
Q Okay. Dr. Levy, let's just switch topics for a couple of minutes.
Do you know if Mirror Worlds has a damages expert in this case?
A Yes.
Q And who is Mirror Worlds' damages expert?
A Mr. Bratic.
Q Have you ever spoken with Mr. Bratic?
A Yes, I have.
Q What did the two of you discuss?
A We discussed the -- my opinion of the importance of the Gelernter technology and the patents.
And we also discussed whether there was any

way for Apple to achieve the same functions with some kind of work-arounds without using the patented technology.

Q What did you tell him about the importance of the Gelernter technology patents?

A I told him that I thought that the Gelernter technology was a paradigm shift, which means that it really will completely change the way people will use their computers.

Q And did you tell Mr. Bratic anything about your opinion about whether or not there were work-arounds?

A Yes, I did. I told him that I thought that in order to achieve the functionality that was delivered, it would be next to impossible to not use this infringed technology.

Q Is it your opinion that it was impossible as of the time Apple first infringed?

A Yes. Yes, I do.

Q Is it your opinion that there were no work-arounds, as you call them, when the first Gelernter patent was filed in 1996?

A Yes.

Q And did you convey this opinion to Mr. Bratic?

A I did.

Q. Thank you, Mr. Levy -- Dr. Levy.

MR. DIBERNARDO: Your Honor, we have no further questions.

THE COURT: All right. Thank you.

All right. Ladies and Gentlemen of the Jury, I think we're going to call it an afternoon.

Again, I want to thank you for your attention today. It's been a long day, I know.

We do need to make up some time tomorrow, so I'm going to ask you, would there be anyone that would have a problem with being here and starting at 8:30 in the morning?

Okay. We have one. 9:00 o'clock is as early as you can make it.

JUROR: I have a son to drop off at school at 8:00.

THE COURT: All right. We'll start at 9:00 o'clock in the morning, and we'll see where we can get to tomorrow.

And I will advise you that I have three sentencings that I have to do mid-morning tomorrow, and so I'm going to give you -- as quick as I can get through with them, I'll be -- we'll all be working on those while you're breaking, but you may have a little bit longer break in the morning. Instead of 15 minutes,

it may be as much as 30 minutes.

I think we can move through these fairly promptly in the morning, but I just want to make you aware of that.

We'll probably try to work until about 5:30 tomorrow. I will ask the parties to provide lunch for the jury tomorrow. We'll plan to take a 30-minute lunch hour tomorrow and see if we can make up some time.

So with that, again, please remember my instructions. Go home; don't think about the case. Clear your head; have a drink; watch TV, whatever you want to do. Maybe have two drinks depending on what you feel is appropriate.

So y'all have a good evening. We'll see you in the morning.

COURT SECURITY OFFICER: All rise for the jury.

(Jury out.)

THE COURT: All right. Counsel -- you may be seated.

Do counsel from the time adjustments from those depositions?

MR. KELLEY: Yes, Your Honor. You want it in minutes, percentages, or what?

THE COURT: Percentages.

MR. KELLEY: Percentages. As far as on the Lindsay deposition, the exact percentages were 73.67 percent for Mirror Worlds. That's how it's given to me. And 26.33 for Apple.

THE COURT: All right.

MR. KELLEY: And on the Serlet deposition, it was 87.54 percent for Mirror Worlds, and 12.46 for Apple.

MR. RANDALL: I think we've got to round them up and down.

MR. KELLEY: Rounded up and down is fine with me.

THE COURT: All right. Do you -- now let me have it by minutes.

MR. KELLEY: Your Honor, Lindsay was 50 minutes, and rounding it up, that would be 37 minutes for Mirror Worlds and 13 for Apple.

THE COURT: Okay.

MR. KELLEY: And we understand that Serlet was 35 minutes.

Is that correct?

THE COURT: Yes.

MR. KELLEY: If that's the case, that's 31 minutes for Mirror Worlds, and 4 minutes for Apple, again, rounding up.

THE COURT: Okay. So you made us 17 minutes, and it cost the Defendants 17 minutes. So here are your times.

Plaintiff has used 6 hours and 43 minutes and 32 seconds. And Defendants have used 3 hours and 32 minutes of their allotted time.

So we're about -- that's 10 -- we're at -- we should be at 12 hours right now. We're at -- let's see. We're at about 10 hours and 15 minutes. So we've got an hour and 45 minutes we need to make up before the end of Thursday, which I think we can do.

And I hope maybe y'all won't take the full amount of time; but if you do, that's the worst-case scenario. So we'll see where we get tomorrow.

All right. Anything further before we adjourn for the day?

MR. CARROLL: Not from the Plaintiff, Judge.

MR. RANDALL: Your Honor, the motion that we filed I wished to make it clear to the Court that I didn't -- I wasn't suggesting that the Court take it up this morning. I filed it as soon as we could, the motion.

THE COURT: This is the waiver?

MR. RANDALL: Yeah, that's right.
THE COURT: Okay.
MR. RANDALL: Whenever we can take it up, we'll take it up.
THE COURT: All right. Is Plaintiff going to file a response, or do you want to be heard orally on that?
MR. STEIN: We will file a response.
THE COURT: All right. When will you have that filed? By 8:00 o'clock tonight?
MR. STEIN: Yes.
THE COURT: All right. 8:00 o'clock tonight, and I'll take it up at a break.
When will this come up? During your case-in-chief, I guess?
MR. RANDALL: Yeah. We're asking for the production of documents and some additional time with -- with the witness.
THE COURT: Okay.
MR. RANDALL: And so we just wanted to get it on file as soon as we could.
THE COURT: All right. Well, we'll get the response and take a look at that.
Anything further?
MR. RANDALL: No, Your Honor.

THE COURT: All right. Let me see lead and local counsel in chambers, please.

COURT SECURITY OFFICER: All rise.

(Court adjourned.)

CERTIFICATION

I HEREBY CERTIFY that the foregoing is a true and correct transcript from the stenographic notes of the proceedings in the above-entitled matter to the best of our abilities.

/s/_____
SHEA SLOAN, CSR Date
Official Court Reporter
State of Texas No.: 3081
Expiration Date: 12/31/10

/s/_____
JUDITH WERLINGER, CSR Date
Deputy Official Court Reporter
State of Texas No.: 731
Expiration Date 12/31/10